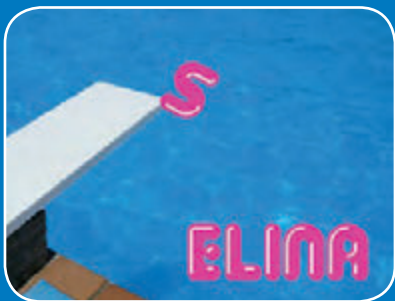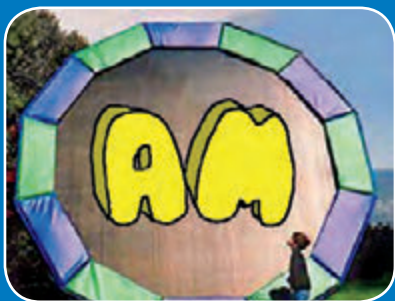# Animate a Name Cards

Animate the letters of your name, initials, or favorite word.
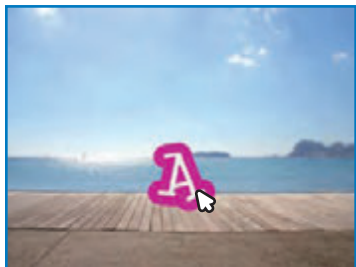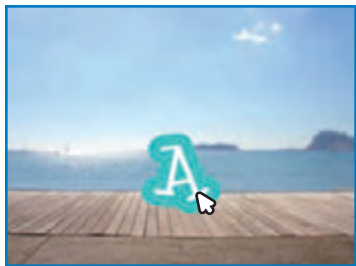
Animate a Name Cards

Try these cards in any order:

- **Color Clicker**
- **Spin**
- **Play a Sound**
- **Dancing Letter**
- **Change Size**
- **Press a Key**
- **Glide Around**

scRATCH

Color Clicker

Make a letter change color when you click it.

SCRATCH

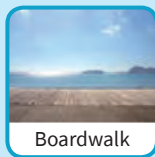# Color Clicker

scratch.mit.edu

GET READY

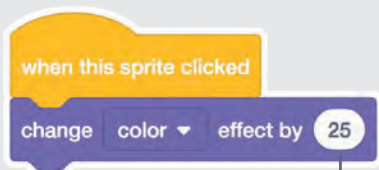Choose a letter from the Sprite Library.

Choose a backdrop.

Boardwalk

Food   Fashion   Letters

To see just the letter sprites, click the **Letters** category at the top of the Sprite Library.

ADD THIS CODE

```
when this sprite clicked
change  color ▼  effect by  25
```

Try different numbers.

TRY IT

Click your letter.

Spin

Make a letter turn when you click it.

SCRATCH

Spin

GET READY

Go to the Sprite Library.

Click the Letters category.

Choose a letter sprite.

ADD THIS CODE

```
when this sprite clicked
repeat 10
  turn ↻ 18 degrees
```

Try different numbers.

TRY IT

Click your letter.

TIP
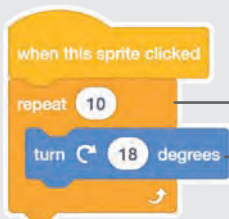
Click this block to reset the sprite's direction.

```
point in direction 90
```

Play a Sound

Click a letter to play a sound.
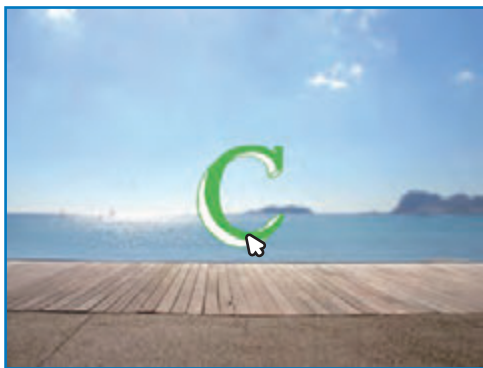
🔊

Play a Sound

GET READY

Go to the Sprite Library.

Click the Letters category.

Choose a letter sprite.

Choose a backdrop.

Boardwalk

Click the Sounds tab.

Choose a sound.

ADD THIS CODE

Click the **Code** tab.

```
when this sprite clicked
play sound  Guitar Strum ▾  until done
```
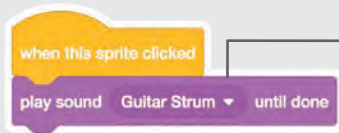
Choose a sound from the menu.

TRY IT

Click your letter.

Dancing Letter

Make a letter move to the beat.

SCRATCH

Dancing Letter

GET READY

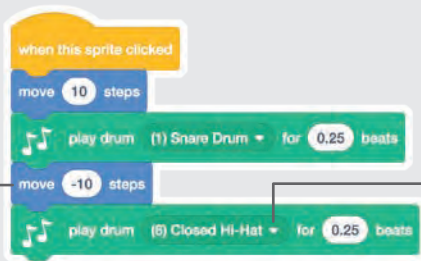Choose a backdrop.

Stage

Choose a letter from the Sprite Library.

Click the **Extensions** button (at the bottom left).

Music
Play instruments and drums.

Then click **Music** to add the music blocks.

ADD THIS CODE

when this sprite clicked

move 10 steps

play drum (1) Snare Drum ▼ for 0.25 beats

move -10 steps

play drum (6) Closed Hi-Hat ▼ for 0.25 beats

Type a minus sign to move backward.

Choose a different drum from the menu.

TRY IT

Click your letter.

Change Size

Make a letter get bigger and then smaller.

scRATcH

Change Size

GET READY

Go to the Sprite Library.

Letters

Click the Letters category.

Choose a letter sprite.

ADD THIS CODE

```
when this sprite clicked
repeat 15
    change size by 10
repeat 15
    change size by -10
```
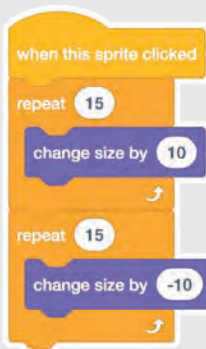
— **Type a minus sign to get smaller.**

TRY IT

Click your letter.

TIP

Click this block to reset the size.

```
set size to 100 %
```
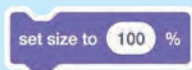
Press a Key

Press a key to make your letter change.

SCRATCH

Press a Key

GET READY

Choose a backdrop.

Wall 1

Choose a letter from the Sprite Library.

ADD THIS CODE

```
when space ▾ key pressed
turn ↻ 90 degrees
change color ▾ effect by 25
```

Try different numbers.

TRY IT

C V B N M

Press the **space** key.

TIP

```
when space ▾ key pressed
```
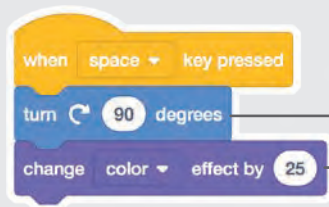
✓ space
left arrow

You can choose a different key from the menu.
Then press that key!

Glide Around

**Make a letter glide smoothly
from place to place.**

SCRATCH

Glide Around

GET READY

Choose a backdrop.

Jurassic

Choose a letter from the Sprite Library.

ADD THIS CODE

when this sprite clicked

glide **1** secs to x: **10** y: **100**

glide **1** secs to x: **40** y: **-130**

glide **1** secs to x: **10** y: **100**

Try different numbers.

TRY IT

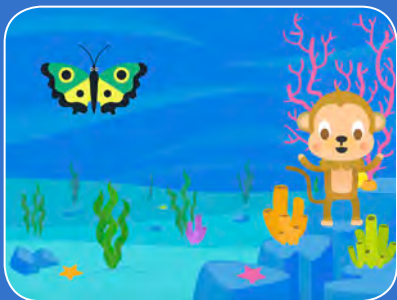**Click your letter to start.**

TIP

When you move a sprite, you can see the numbers for **x** and **y** update.

x is the position from left to right.
y is the position up and down.

↔ x **40**   ↕ y **-130**

Imagine a World

Imagine a world where anything is possible!

SCRATCH

Imagine a World Cards

Try these cards in any order:

- **Say Something**
- **Fly Around**
- **Go Right and Left**
- **Go Up and Down**
- **Change Costumes**
- **Glide from Here to There**
- **Grow and Shrink**
- **Change Backdrops**
- **Add a Sound**

Say Something

Type what you want your sprite to say.
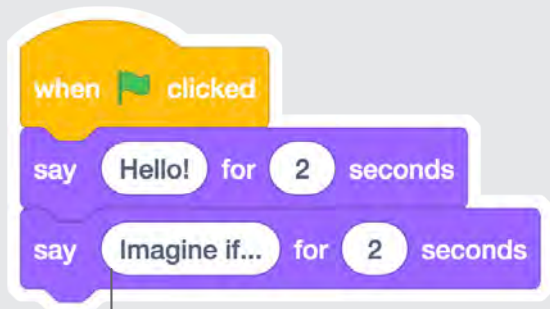

Imagine if...

SCRATCH

Say Something

GET READY

Sprite1

Select the sprite you want to talk.

ADD THIS CODE

Sprite1

```
when [green flag] clicked
say Hello! for 2 seconds
say Imagine if... for 2 seconds
```
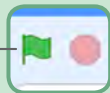
└─ **Type what you want to say.**

TRY IT

Click the green flag to start. ─

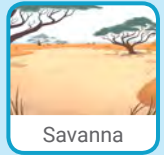# Fly Around

Press the space key to glide.
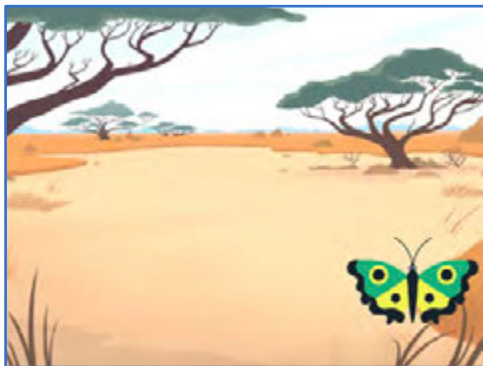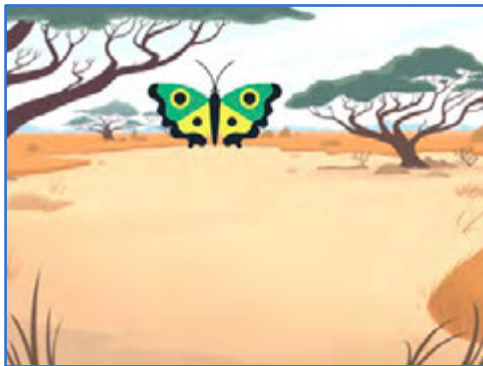
Fly Around

GET READY

Choose a sprite.

Butterfly 2

Choose a backdrop.
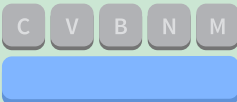
Savanna

ADD THIS CODE

Butterfly 2

```
when  space ▾  key pressed
start sound  pop ▾
glide  1  secs to  random position ▾
```

TRY IT

C V B N M

Press the **space** key to glide.

Go Right and Left

Press arrow keys to move right and left.

SCRATCH

Go Right and Left

GET READY
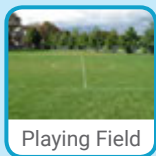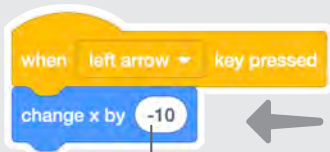
Choose a sprite.

Ben

Choose a backdrop.
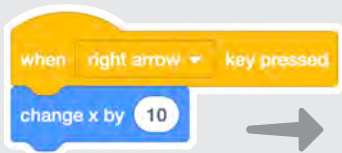
Playing Field

ADD THIS CODE

Change x to move your character *side to side*.

Ben

```
when right arrow ▾ key pressed
change x by 10
```

➡️

```
when left arrow ▾ key pressed
change x by -10
```

⬅️

Type a minus sign to move *left*.

TRY IT

Press the right and left arrow keys on your keyboard.

Go Up and Down

Press arrow keys to move up and down.

SCRATCH

Go Up and Down

GET READY

Choose a sprite.

Hedgehog

Choose a backdrop.
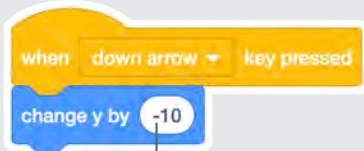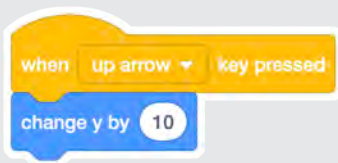
Woods and Bench

ADD THIS CODE

Change y to move your character *up and down*.

Hedgehog

```
when  up arrow ▾  key pressed
change y by  10
```

⬆

```
when  down arrow ▾  key pressed
change y by  -10
```
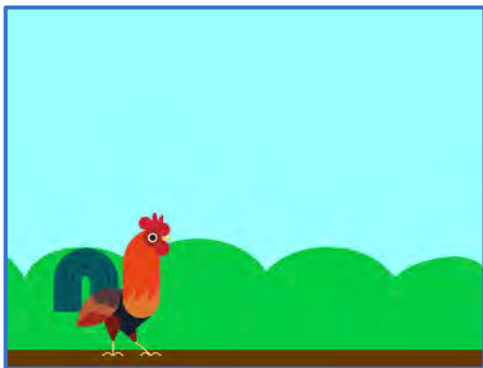
⬇

Type a minus sign to move *down*.

TRY IT

Press the up and down arrow keys on your keyboard.

Change Costumes

Animate a sprite when you click it.

SCRATCH

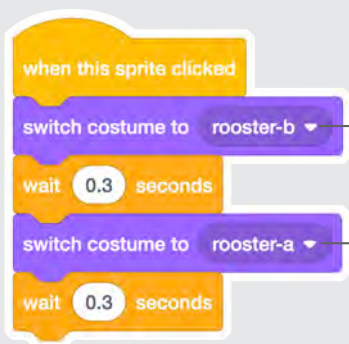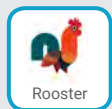# Change Costumes

GET READY

Choose a sprite.

Rooster

Choose a backdrop.

Blue Sky

ADD THIS CODE

Rooster

```
when this sprite clicked
switch costume to  rooster-b ▾
wait  0.3  seconds
switch costume to  rooster-a ▾
wait  0.3  seconds
```
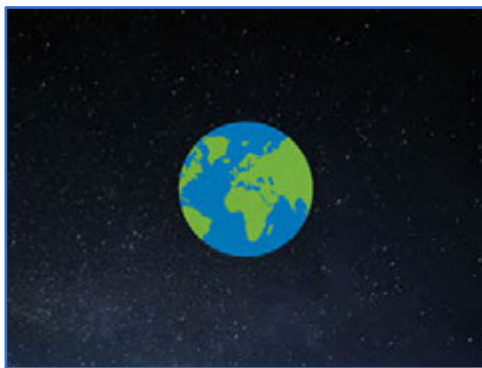
Choose one costume.

Choose another.

TRY IT

Click your sprite.

Glide From Here to There
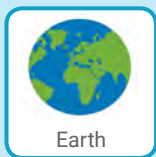
**Make a sprite glide from
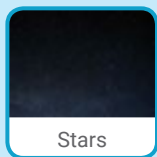one point to another.**

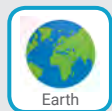# Glide From Here to There

GET READY

Choose a sprite.

Earth

Choose a backdrop.

Stars

ADD THIS CODE

Earth

```
when [flag] clicked
go to x: 0 y: 0
glide 1 secs to x: -180 y: -100
```

Set the starting point.

Set the end point.

TRY IT

Click the green flag to start.
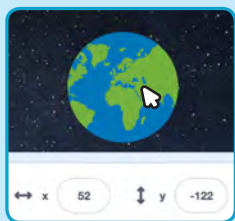
TIP

When you move a sprite, you can see the numbers for x and y update.
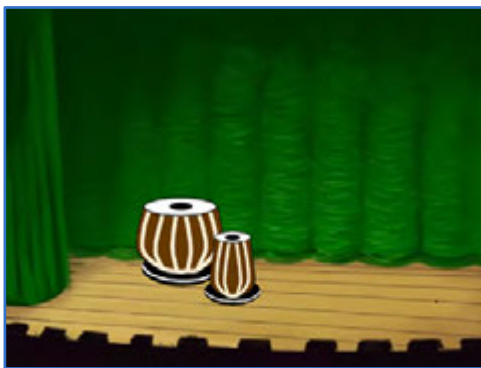
x is the position from left to right.
y is the position up and down.

x 52   y -122

Grow and Shrink

Make a sprite change size when you click it.

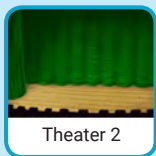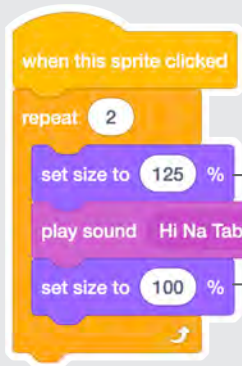SCRATCH

Grow and Shrink

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GET READY

Choose a backdrop.

Theater 2

Choose a sprite.

Drums Tabla

ADD THIS CODE

Drums Tabla

```
when this sprite clicked
repeat 2
  set size to 125 %
  play sound Hi Na Tabla until done
  set size to 100 %
```

Type a larger number to make it bigger.

Type 100 to return to original size.

TRY IT

Click your sprite.

Change Backdrops

Change scenes by switching backdrops.

Let's explore!
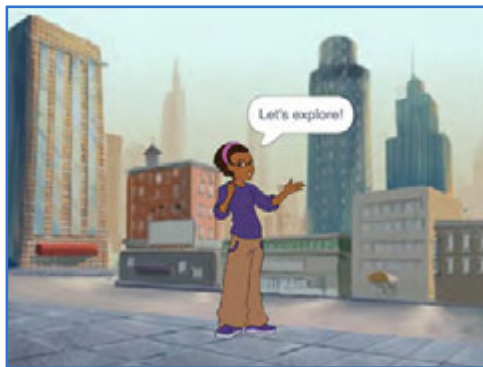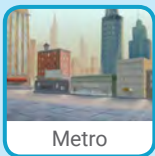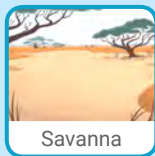
SCRATCH

Change Backdrops

scratch.mit.edu

GET READY

Choose two backdrops.

Savanna

Metro

Choose a sprite.

Avery

ADD THIS CODE

Avery

```
when 🏳 clicked
switch backdrop to Savanna ▾
wait 2 seconds
switch backdrop to Metro ▾
say Let's explore! for 2 seconds
```
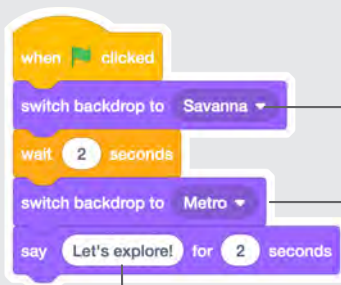
Choose the backdrop you want to start with.

Choose the second backdrop.
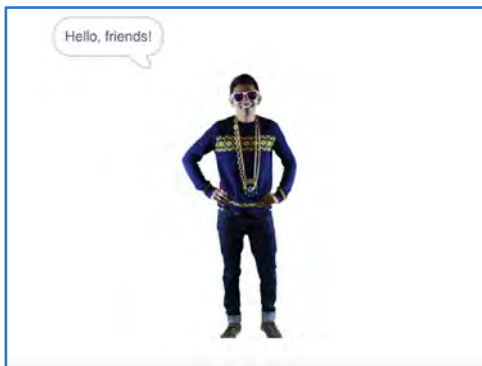
Type what you want to say.

TRY IT

Click the green flag to start.

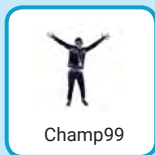# Add a Sound

Add your voice or other sounds
to your project.

SCRATCH

Add a Sound
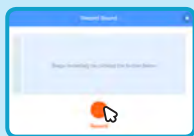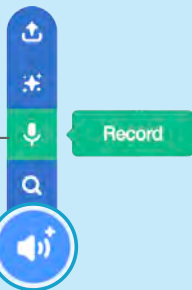
GET READY

Choose a sprite.

Champ99

Sounds

Click the Sounds tab.

Record

Then click Record
from the pop-up menu.
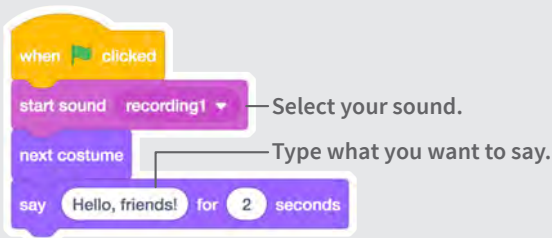
Or, click here to
choose a sound
from the library.

To record your voice or other
sound, click the red button.

If your device is unable to record,
you can choose a sound instead.

ADD THIS CODE

Code

Click the Code tab.

when [flag] clicked

start sound recording1 ▾ — Select your sound.

next costume — Type what you want to say.
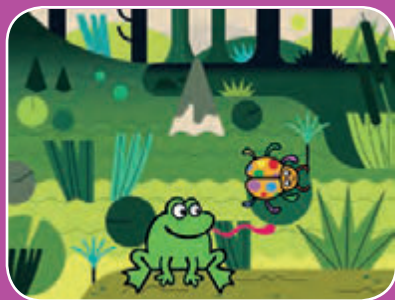
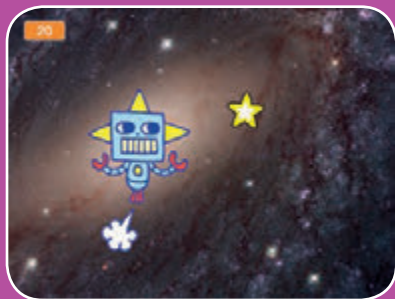say Hello, friends! for 2 seconds

TRY IT

Click the green flag to start.

Chase Game Cards

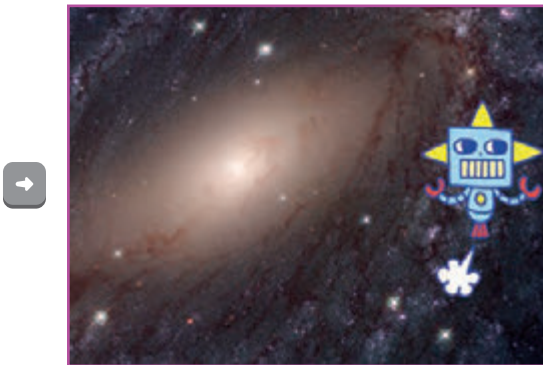**Make a game where you chase a character to score points.**
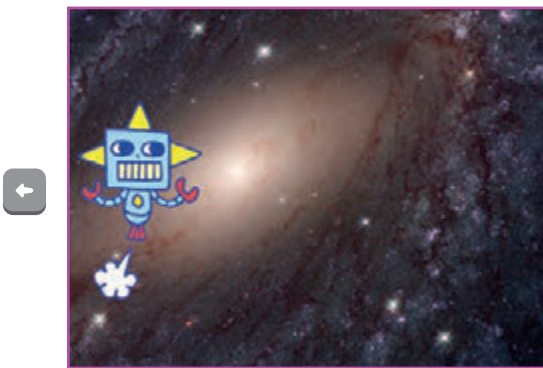
Chase Game Cards

Use these cards in this order:

1. **Move Left and Right**

2. **Move Up and Down**

3. **Chase a Star**

4. **Play a Sound**

5. **Add a Score**

6. **Level Up!**

7. **Victory Message**

Move Left and Right

Press arrow keys to move left and right.

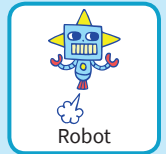SCRATCH

Move Left and Right

scratch.mit.edu

GET READY

Choose a backdrop.

Galaxy

Choose a character.

Robot

ADD THIS CODE

Robot

Choose **right arrow**.

```
when right arrow ▾ key pressed
change x by 10
```

Choose **left arrow**.

```
when left arrow ▾ key pressed
change x by -10
```
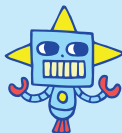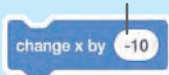
Type a minus sign to move left.

TRY IT

Press the arrow keys. ← →

TIP

x is the position on the Stage from left to right.

Type a negative number to move to the left.

```
change x by -10
```

Type a positive number to move to the right.

```
change x by 10
```

Move Up and Down

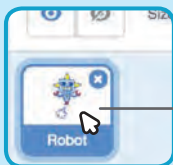**Press arrow keys to move up and down.**

Move Up and Down

GET READY

Click your character to select it.

ADD THIS CODE

Robot

Choose **up arrow**.

when up arrow key pressed
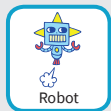
Use the **change y by** block to move up.

change y by 10

Choose **down arrow**.

when down arrow key pressed

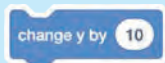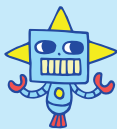Type a minus sign to move down.

change y by -10

TRY IT

Press the arrow keys.

TIP

y is the position on the Stage from top to bottom.

change y by 10   Type a positive number to move up.
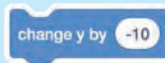
change y by -10   Type a negative number to move down.

Chase a Star

Add a sprite to chase.

SCRATCH

Chase a Star

GET READY

Choose a sprite to chase, like Star.

Star

ADD THIS CODE

Star

```
when [green flag] clicked
forever
  glide (1) secs to [random position ▼]
```
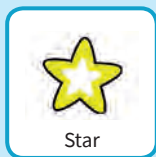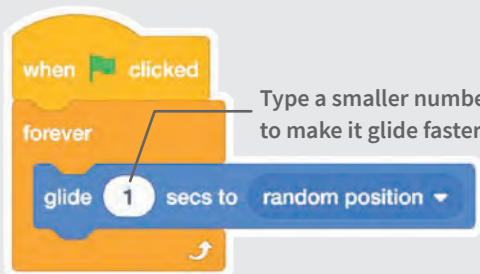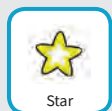
Type a smaller number (like 0.5) to make it glide faster.

TRY IT

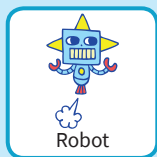Click the green flag to start. ——— [green flag] [stop] ——— Click the stop sign to stop.

Play a Sound

Play a sound when your character touches the star.

Play a Sound

GET READY

Click to select the Robot sprite.

🔊 Sounds

Click the Sounds tab.

Choose a sound from the Sounds Library, like Collect.

ADD THIS CODE

Code **Click the Code tab and add this code.**

when 🏳 clicked

forever

if touching Star ▾ ? then

play sound Collect ▾ until done
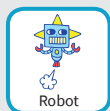
Choose your sound from the menu.
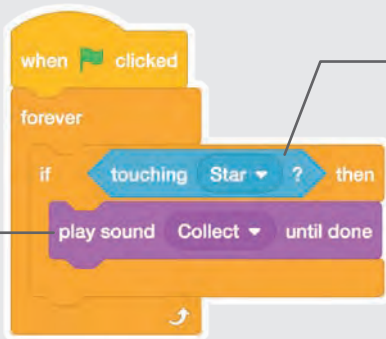
Insert the touching block into the if then block.
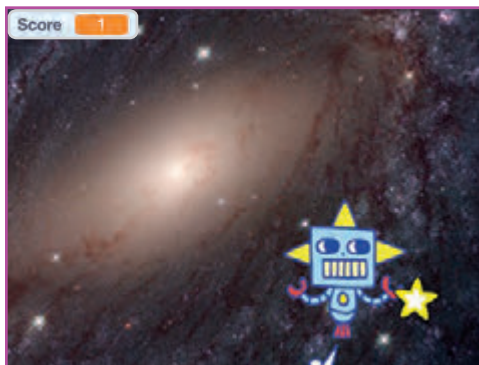
touching Star ▾ ?

if   then

TRY IT

Click the green flag to start.

Add a Score

Score points when you touch the star.

SCRATCH
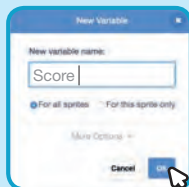
Add a Score

GET READY

Choose **Variables**.
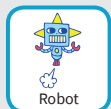
Click the **Make a Variable** button.

Name this variable **Score** and then click **OK**.

ADD THIS CODE

Select **Score** from the menu.

Add this block to reset the score.

Add this block to increase the score.

TIP

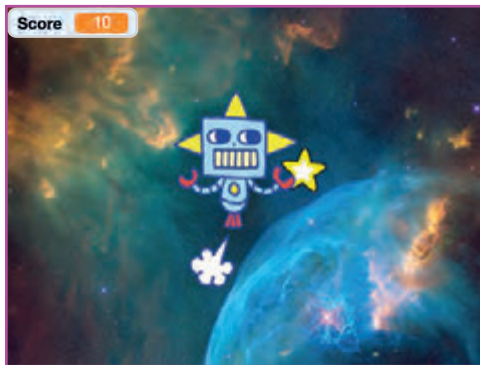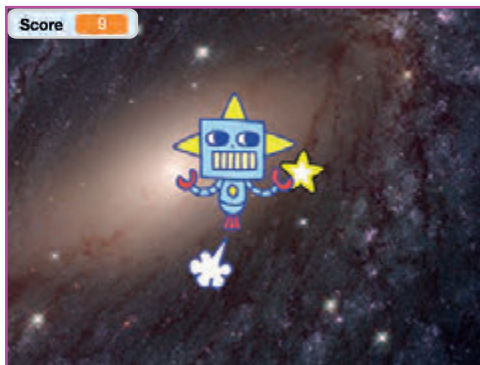Use the **set variable** block to reset the score to zero.

Use the **change variable** block to increase the score.

Level Up!

Go to the next level.

SCRATCH

Level Up!

GET READY

Choose a second backdrop, like Nebula.
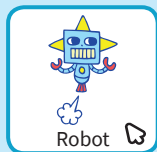
Nebula

Select the Robot sprite.

Robot

ADD THIS CODE

Robot

```
when [flag] clicked
switch backdrop to Galaxy ▼
wait until < Score = 10 >
switch backdrop to Nebula ▼
```
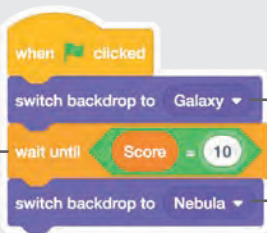
Choose your first backdrop.

```
Score = 10
```

Insert the **Score** block into the **equals** block from the Operators category.

Choose the backdrop to switch to.

```
when backdrop switches to Nebula ▼
play sound Win ▼ until done
```

Choose a sound.

TRY IT

Click the green flag to start the game!

Victory Message

Show a message when you go to the next level.
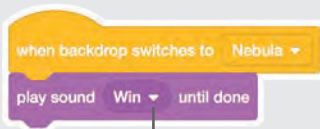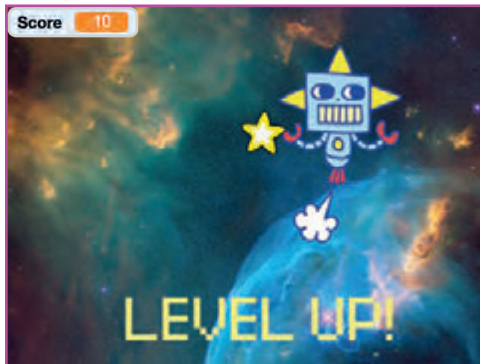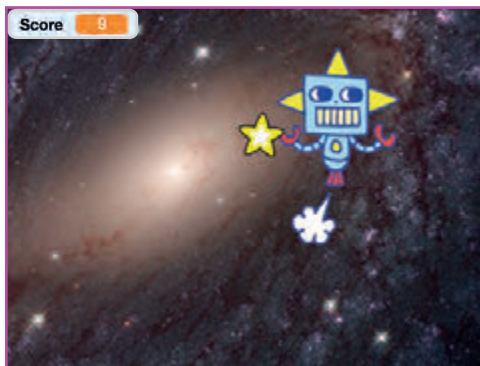
SCRATCH

Victory Message

GET READY

Use the **Text** tool to write
a message, like "Level Up!"

**Click the Paint icon
to make a new sprite.**

**You can change the font
color, size, and style.**

ADD THIS CODE

when 🚩 clicked
hide
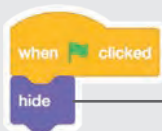
— Hide the message at the beginning.

when backdrop switches to Nebula ▾
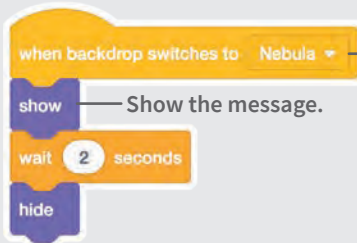
— Choose the backdrop
for the next level.

show — Show the message.

wait 2 seconds

hide

TRY IT

Click the green flag to play your game.

Make Music Cards
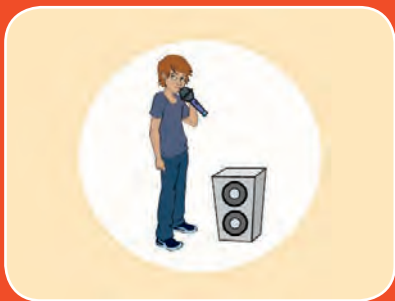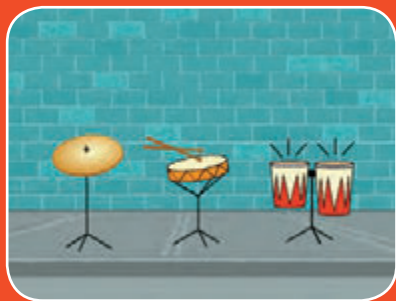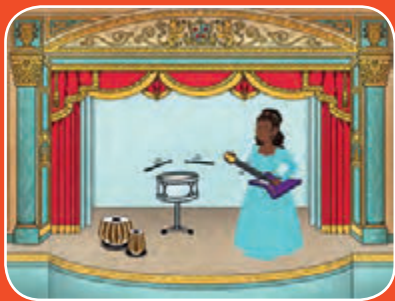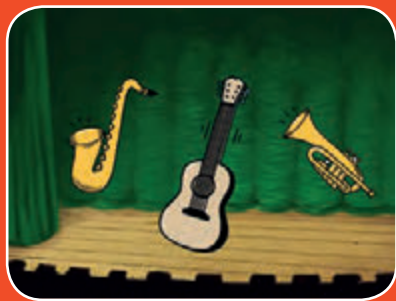
Choose instruments, add sounds, and press keys to play music.

scratch

Make Music Cards

Try these cards in any order:

- **Play a Drum**
- **Make a Rhythm**
- **Animate a Drum**
- **Make a Melody**
- **Play a Chord**
- **Surprise Song**
- **Beatbox Sounds**
- **Record Sounds**
- **Play a Song**

SCRATCH

Play a Drum

Press a key to make a drum sound.
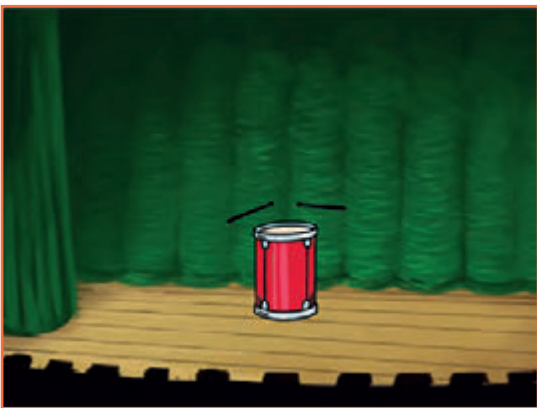
Play a Drum

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GET READY

Choose a backdrop.

Theater 2

Choose a drum.

Drum

ADD THIS CODE

when space ▾ key pressed
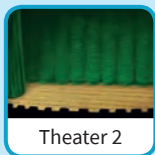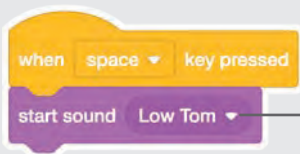
start sound Low Tom ▾ ——— Select the sound you want from the menu.

TRY IT

C V B N M

——— Press the **space** key on your keyboard.

Make a Rhythm

Play a loop of repeating drum sounds.
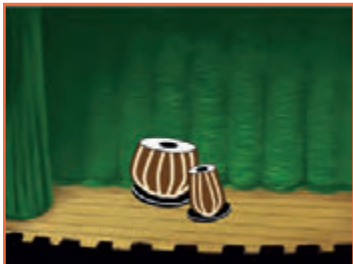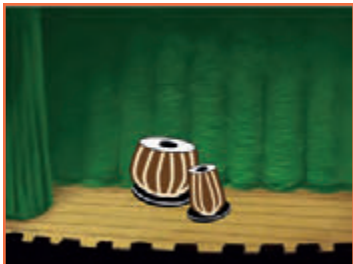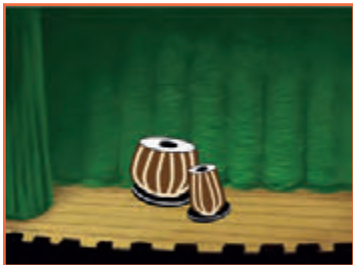
Make a Rhythm

GET READY

Choose a backdrop.
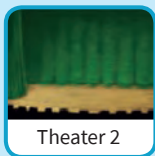
Theater 2

Choose a drum from the Music category.

Drum Tabla

To see just the music sprites, click the **Music** category at the top of the Sprite Library.

Dance | Music | Sports

ADD THIS CODE

```
when space key pressed
repeat 3
  start sound Hi Na Tabla
  wait 0.25 seconds
  start sound Hi Tun Tabla
  wait 0.25 seconds
```

Type how many times you want to repeat.

Try different numbers to change the rhythm.

TRY IT

C V B N M

Press the **space** key on your keyboard.

Animate a Drum

Switch between costumes to animate.
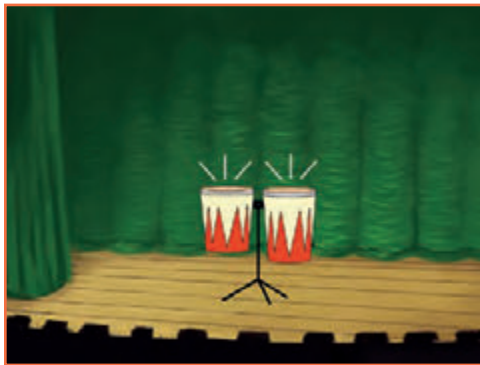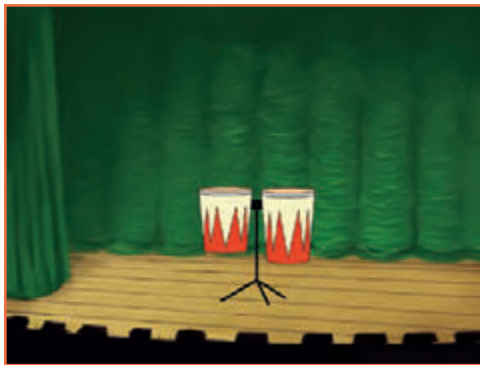
SCRATCH

Animate a Drum

GET READY

Choose a drum.

Drum Conga

Costumes

Click the **Costumes** tab to see the costumes.

You can use the paint tools to change colors.

ADD THIS CODE

Code — Click the **Code** tab.

```
when  left arrow ▾  key pressed
repeat  4
    play sound  High Conga ▾  until done
    next costume
    wait  0.25  seconds
    play sound  Low Conga ▾  until done
    next costume
    wait  0.25  seconds
```
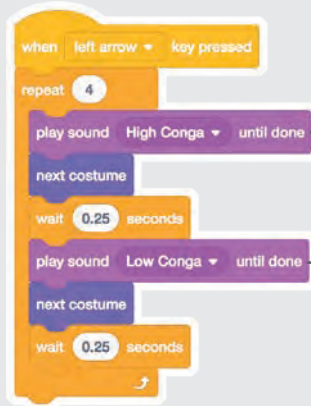
Choose a sound from the menu.

TRY IT

Press the **left arrow** key.

Make a Melody

Play a series of notes.

Make a Melody

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GET READY

Choose an instrument,
like Saxophone.
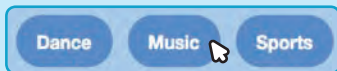
Saxophone
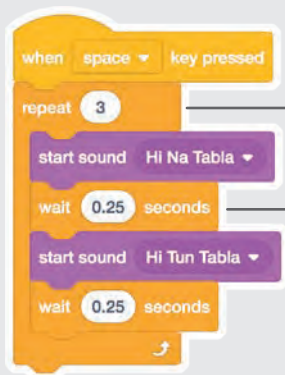
To see just the music sprites,
click the **Music** category at the
top of the Sprite Library.

ADD THIS CODE

when up arrow ▾ key pressed — Choose **up arrow**
(or another key).

start sound C2 Sax ▾

wait 0.25 seconds

start sound G Sax ▾ — Choose different sounds.

wait 0.25 seconds

start sound E Sax ▾

TRY IT

Press the **up arrow** key.

Play a Chord

**Play more than one sound
at a time to make a chord.**
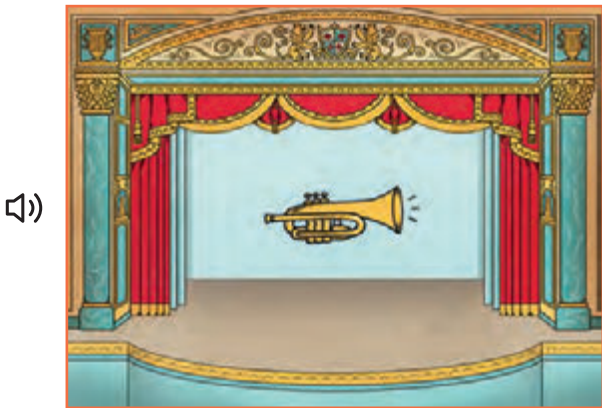
Play a Chord

GET READY

Choose an instrument, like Trumpet.

Trumpet

To see just the music sprites, click the **Music** category at the top of the Sprite Library.

ADD THIS CODE
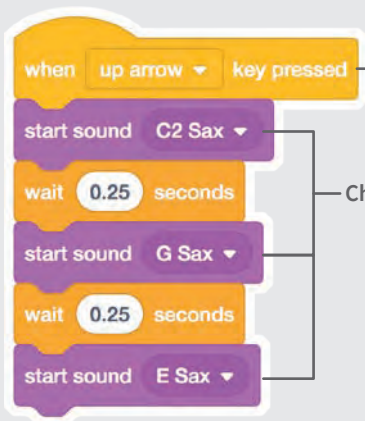
when **down arrow ▼** key pressed — Choose **down arrow** (or another key).

start sound **F trumpet ▼**

start sound **A trumpet ▼** — Choose different sounds.

start sound **C2 trumpet ▼**

TRY IT

Press the **down arrow** key.

TIP

Use start sound to make sounds play at the same time.

Use play sound ▼ until done to play sounds one after another.

Surprise Song

Play a random sound from a list of sounds.

SCRATCH

Surprise Song

GET READY

Choose an instrument, like Guitar.

Guitar

🔊 Sounds

Click the **Sounds** tab to see how many sounds are in your instrument.

ADD THIS CODE

Code — Click the **Code** tab.

when **right arrow** key pressed —— Choose **right arrow**.

start sound pick random **1** to **8** —— Insert a **pick random** block.

change color effect by **25**

Type the number of sounds in your instrument.

TRY IT

Press the **right arrow** key.

Beatbox Sounds

Play a series of vocal sounds.

Beatbox Sounds

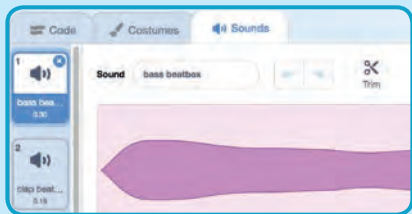scratch.mit.edu

GET READY

Choose the Microphone sprite.

Microphone

Click the **Sounds** tab to see how many sounds are in your instrument.

ADD THIS CODE

Click the **Code** tab.

Choose **b** (or another key).

Insert a **pick random** block.

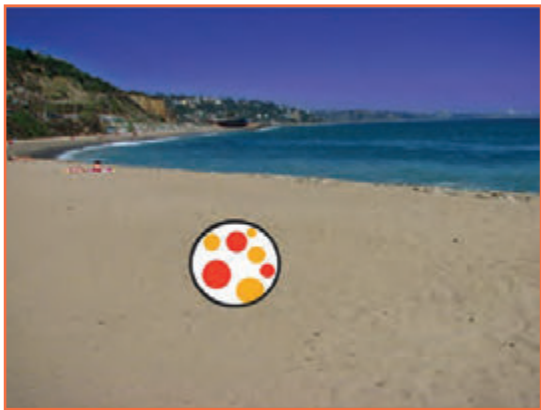Type the number of sounds in this sprite.

TRY IT

B

Press the **B** key to start.

Record Sounds

Make your own sounds to play.

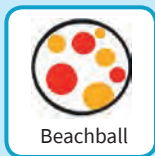SCRATCH

Record Sounds

scratch.mit.edu

GET READY

Choose a backdrop.

Beach Malibu

Choose any sprite.

Beachball

Sounds
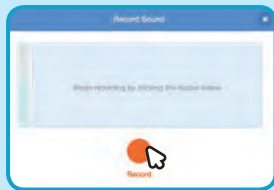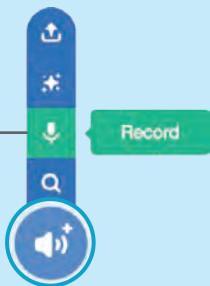
Click the **Sounds** tab.

Then choose **Record** from the pop-up menu.

Record

Click the **Record** button to record a short sound.

ADD THIS CODE

Code Click the **Code** tab.

```
when c ▾ key pressed
start sound recording1 ▾
```
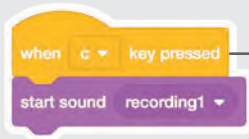
Choose **c** (or another key).

TRY IT

C   Press the **C** key to start.

Play a Song

Add a music loop as background music.

🔊

SCRATCH

Play a Song

GET READY

Choose a sprite, like Speaker.

Speaker

Click the **Sounds** tab.

Choose a sound from the Loops category, like Drum Jam.
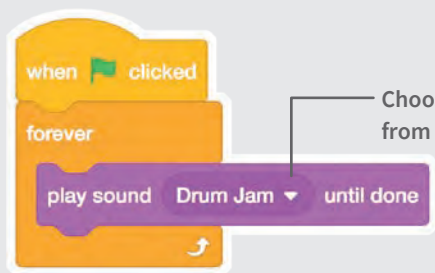
All Animals Effects Loops
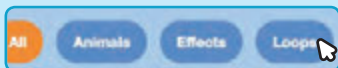
To see just the music loops, click the **Loops** category at the top of the Sounds Library.

ADD THIS CODE

Click the **Code** tab.

when 🏳 clicked

forever

play sound Drum Jam ▼ until done

Choose your sound from the menu.

TRY IT

Click the green flag to start.

Animate a Character Cards

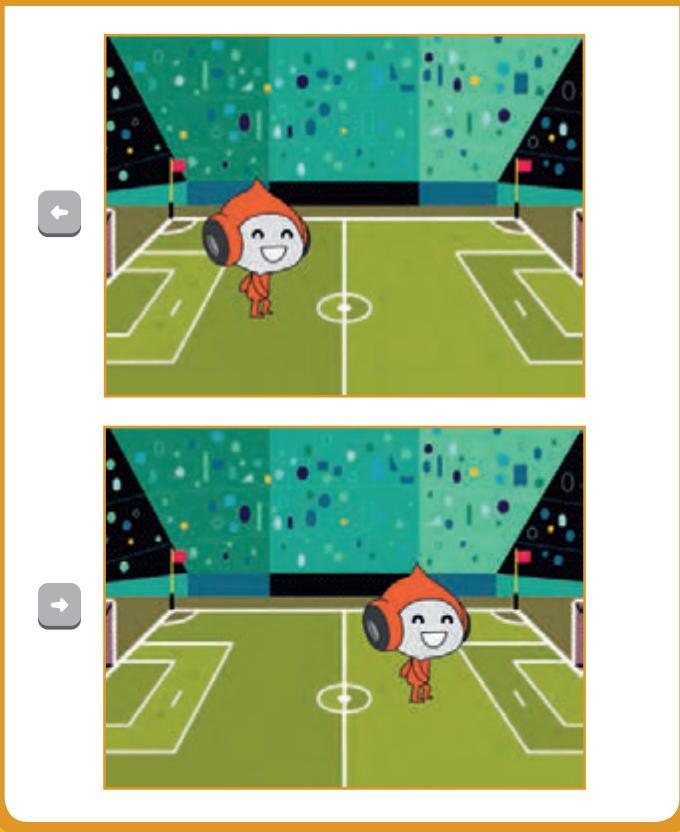**Bring characters to life with animation.**

Animate a Character Cards

Try these cards in any order:

- **Move with Arrow Keys**

- **Make a Character Jump**

- **Switch Poses**

- **Glide from Point to Point**

- **Walking Animation**

- **Flying Animation**

- **Talking Animation**

- **Draw an Animation**

Move with Arrow Keys

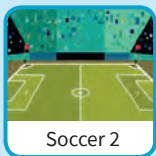Use the arrow keys to move your
character around.

Move with Arrow Keys

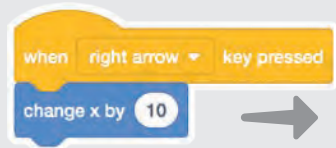## GET READY

Choose a backdrop.

Soccer 2

Choose a character.

Pico Walking

ADD THIS CODE

Change x
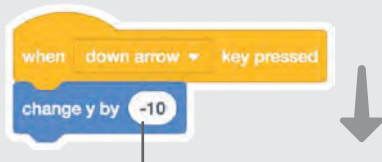**Move your character *side to side*.**

```
when  right arrow ▼  key pressed
change x by  10
```

➡

```
when  left arrow ▼  key pressed
change x by  -10
```

⬅

Type a minus sign to move *left*.

Change y
Move your character *up and down*.

```
when  up arrow ▼  key pressed
change y by  10
```

⬆

```
when  down arrow ▼  key pressed
change y by  -10
```

⬇
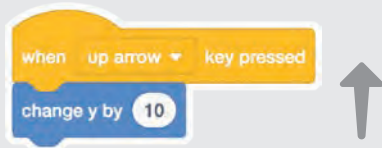
Type a minus sign to move *down*.

TRY IT

Press the arrow keys on your keyboard to move your character around.

Make a Character Jump

Press a key to jump up and down.

SCRATCH

Make a Character Jump

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GET READY

Choose a backdrop.

Blue Sky
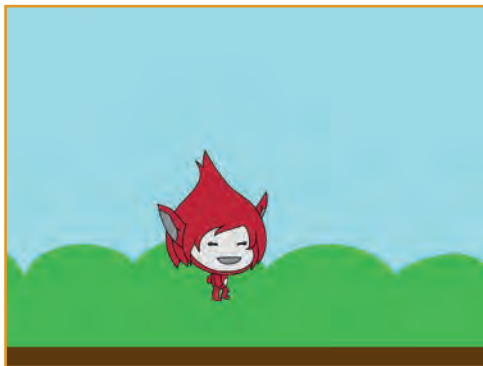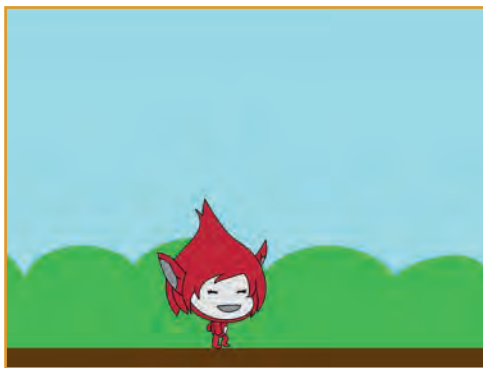
Choose a character.

Giga Walking

ADD THIS CODE

Giga Walking

```
when space ▾ key pressed
change y by 60
wait 0.3 seconds
change y by -60
```
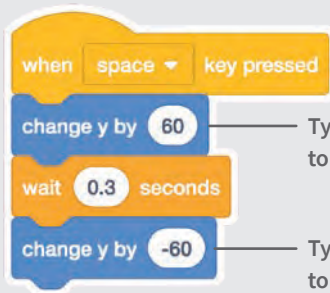
Type how high to jump.

Type a minus sign to go back down.

TRY IT

C V B N M

Press the **space** key on your keyboard.

Switch Poses

Animate a character
when you press a key.

SCRATCH

Switch Poses

GET READY

Choose a character with multiple costumes, like Max.

Max

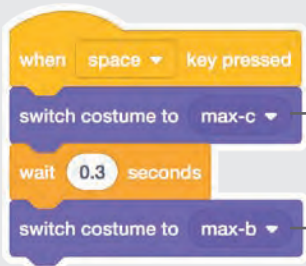Scroll over sprites in the Sprite Library to see if they have different costumes.

Costumes

Click the **Costumes** tab to view all of your sprite's costumes.

ADD THIS CODE

Code Click the **Code** tab.

Max

when space ▼ key pressed

switch costume to max-c ▼ ——— Choose a costume.

wait 0.3 seconds

switch costume to max-b ▼ ——— Choose a different costume.

TRY IT

C V B N M

Press the **space** key on your keyboard.

Glide from Point to Point

Make a sprite glide from
point to point.
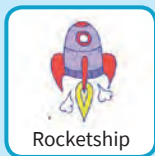
scratch

Glide from Point to Point

GET READY
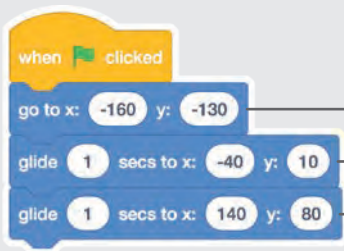
Choose a backdrop.

Nebula

Choose a character.

Rocketship

ADD THIS CODE

Rocketship

```
when 🏳 clicked
go to x: -160  y: -130
glide 1 secs to x: -40  y: 10
glide 1 secs to x: 140  y: 80
```

Set the starting point.

Set another point to glide to.

Set the end point.

TRY IT

Click the green flag to start.

TIP

```
go to x: -40  y: 10
glide 1 secs to: random position
glide 1 secs to x: -40  y: 10
```

Motion

Looks

Sound
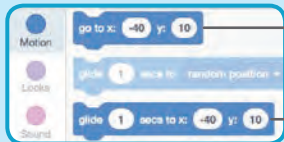
When you drag a sprite, its **x** and **y** positions will update in the blocks palette.

Walking Animation

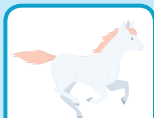Make a character walk or run.

SCRATCH

Walking Animation

GET READY

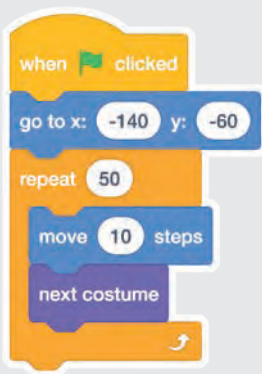Choose a backdrop.

Jungle

Choose a walking or running sprite.

Unicorn Running

ADD THIS CODE

Unicorn Running

```
when 🏳 clicked
go to x: -140 y: -60
repeat 50
    move 10 steps
    next costume
```

TRY IT

Click the green flag to start.

TIP

wait 0.01 seconds

If you want to slow down the animation, try adding a **wait** block inside the **repeat** block.

Flying Animation

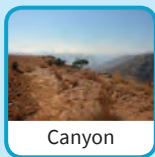Have a character flap its wings as it moves across the stage.

SCRATCH

Flying Animation

GET READY

Choose a backdrop.
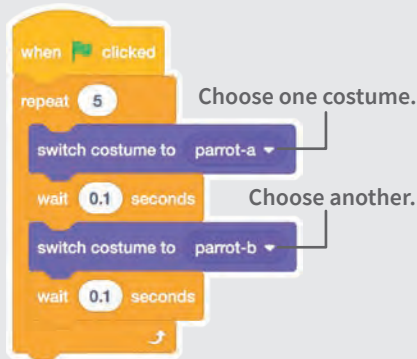
Canyon

Choose Parrot (or another flying sprite).

Parrot

ADD THIS CODE

Glide across the screen

```
when [flag] clicked
go to x: -170 y: 120
glide 1 secs to x: 150 y: 50
```
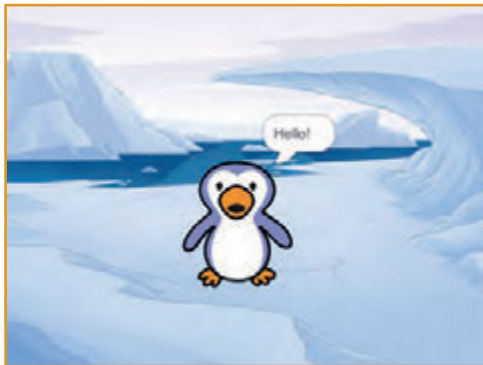
Set the starting point.

Set the end point.

Flap the wings

```
when [flag] clicked
repeat 5
  switch costume to parrot-a
  wait 0.1 seconds
  switch costume to parrot-b
  wait 0.1 seconds
```

Choose one costume.

Choose another.

TRY IT

Click the green flag to start.

Talking Animation

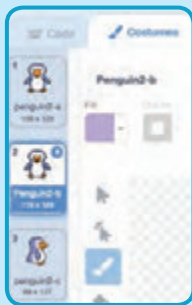## Make a character talk.

SCRATCH

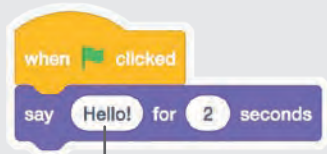# Talking Animation

GET READY

Choose Penguin 2.

Penguin 2

Costumes

Click the **Costumes** tab to view the penguin's other costumes.
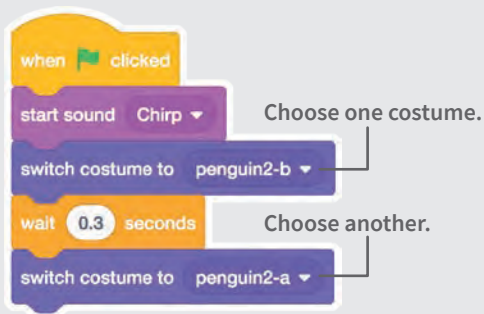
ADD THIS CODE

Code

Click the **Code** tab.

when 🚩 clicked
say Hello! for 2 seconds

Type what you want your character to say.

when 🚩 clicked
start sound Chirp ▾
switch costume to penguin2-b ▾
wait 0.3 seconds
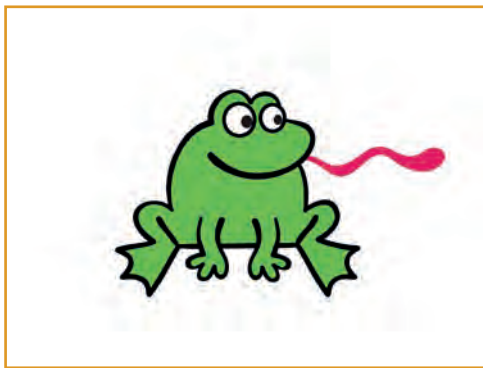switch costume to penguin2-a ▾

Choose one costume.

Choose another.

TRY IT

Click the green flag to start.

Draw an Animation

Edit a sprite's costumes to
create your own animation.

SCRATCH

Draw an Animation

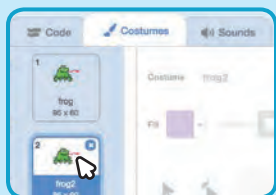## GET READY

Choose a character.

Frog

Costumes

Click the **Costumes** tab.

Right-click (on a Mac, control-click) a costume to duplicate it.

Now you should have two identical costumes.

Click a costume to select and edit it.

Click the **Select** tool.

Select a part of the costume to squeeze or stretch it.

Drag the handle to rotate an object you've selected.

ADD THIS CODE

Code

Click the **Code** tab.

Use the **next costume** block to animate your character.

```
when this sprite clicked
next costume
wait 0.5 seconds
next costume
```

TRY IT

Click the green flag to start.

Create a Story Cards

Choose characters, add conversation, and bring your story to life.

SCRATCH

Create a Story Cards

Start with the first card, and then
try the other cards in any order:

- **Start a Story**
- **Start a Conversation**
- **Switch Backdrops**
- **Click a Character**
- **Add Your Voice**
- **Glide to a Spot**
- **Walk onto the Stage**
- **Respond to a Character**
- **Add a Scene**

Start a Story

Set the scene and have a character say something.

SCRATCH

Start a Story

GET READY

Choose a backdrop.

Witch House

Choose a character.

Wizard

ADD THIS CODE

Wizard

```
when [green flag] clicked
say Welcome to Magic School! for 2 seconds
```
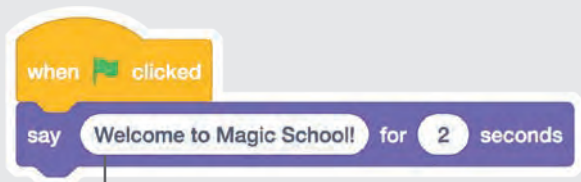
Type what you want your character to say.

TRY IT

Click the green flag to start.

Start a Conversation

Make two characters talk to each other.

SCRATCH

Start a Conversation

GET READY

Choose two characters, like Witch and Elf.

Witch

Elf

ADD THIS CODE

Click the thumbnail for each character, and then add its code.

Witch

```
when [flag] clicked
say  I have a pet owl!  for  2  seconds
wait  2  seconds
```

Elf

```
when [flag] clicked
wait  2  seconds
say  What's its name?  for  2  seconds
```

Type what you want each character to say.

TIP

🖌 Costumes

To change the direction a character is facing, click the **Costumes** tab, then click **Flip Horizontal**.

Fill · Outline · 4 · Copy · Paste · Delete · Flip Horizontal · Flip Vertical

Switch Backdrops

Change from one backdrop to another.
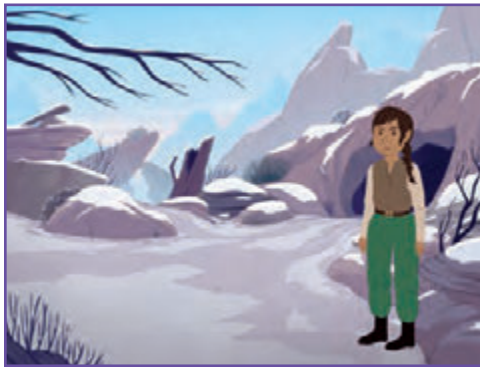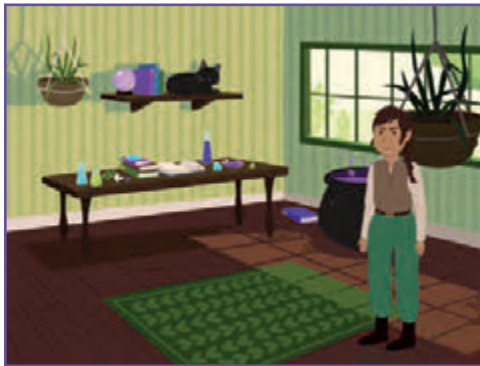
Switch Backdrops

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GET READY

Choose a character.

Elf

Choose two backdrops.

Witch House

Mountain

ADD THIS CODE

Elf

```
when 🏳 clicked
switch backdrop to   Witch House ▼
wait  4  seconds
switch backdrop to   Mountain ▼
```
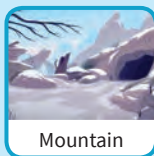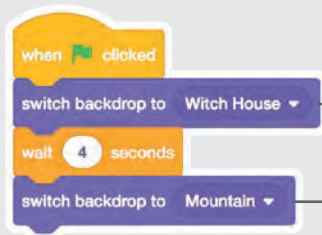
Choose the backdrop you want to start with.

Choose the second backdrop.

TRY IT

Click the green flag to start. ⎯ 🏳 🔴

Click a Character

Make your story interactive.
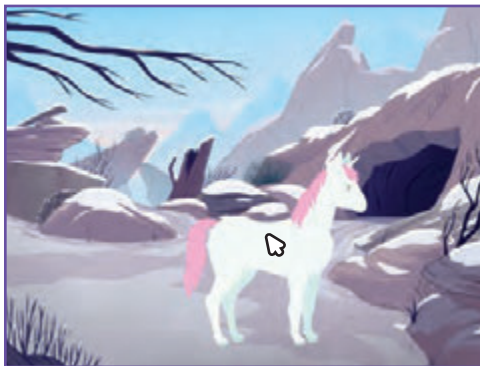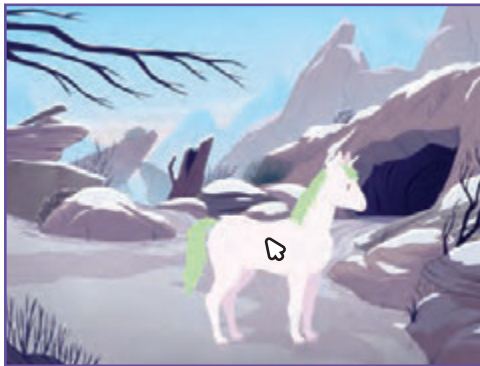
SCRATCH

Click a Character

GET READY

Choose a backdrop.

Mountain

Choose a character.

Unicorn

ADD THIS CODE

Unicorn

```
when this sprite clicked
change  color ▾  effect by  25
start sound  Magic Spell ▾
```
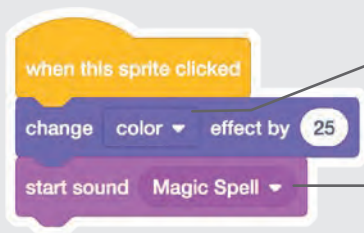
You can choose different effects.

Select a sound from the menu.

TRY IT

Click your character.

Add Your Voice

Record your voice to make a character talk.
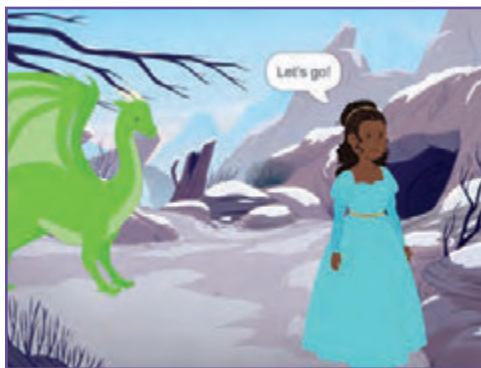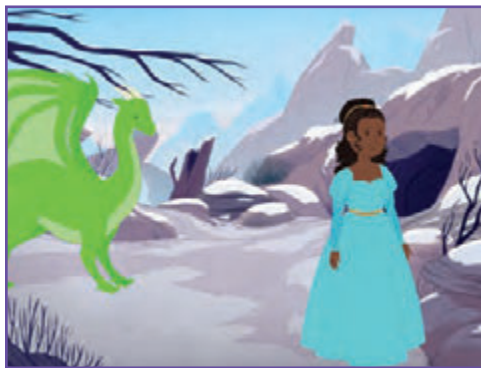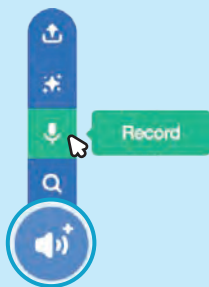
SCRATCH

Add Your Voice

GET READY

Choose a sprite.

Princess

(1) Sounds Click the **Sounds** tab.

Record

Choose Record from the pop-up menu.

Click Record.
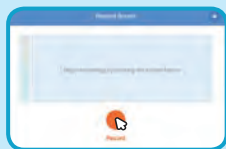
When you're done, click Save.

ADD THIS CODE

Code Click the **Code** tab.

Princess

```
when [flag] clicked
start sound recording1 ▼
say Let's go! for 2 seconds
```
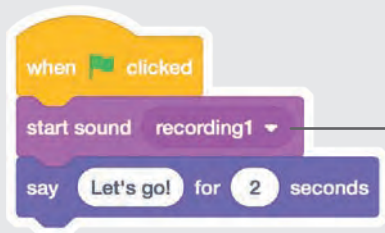
Select your recording from the menu.

TRY IT

Click the green flag to start.

Glide to a Spot

Make a character move across the Stage.

SCRATCH

Glide to a Spot

GET READY

Choose a backdrop.
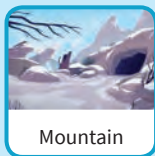
Mountain

Choose a character.

Owl

ADD THIS CODE

Owl

```
when 🏳 clicked
go to x: -180 y: 140
glide 1 secs to x: -30 y: 50
```

TRY IT

Click the green flag to start. ——— 🏳 ⬤

TIP

```
go to x: -32 y: 122

glide 1 secs to x: -32 y: 122
```

Motion
Looks
Sound
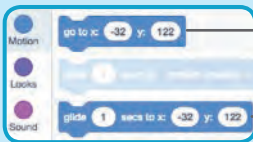
When you drag a sprite, the numbers for x and y will update in the blocks palette.

Walk onto the Stage

Have a character enter the scene.
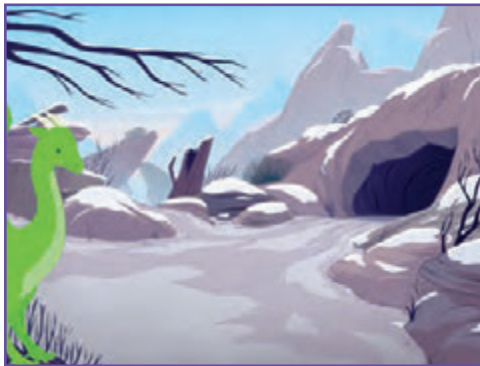
SCRATCH

Walk onto the Stage

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GET READY

Choose a backdrop.
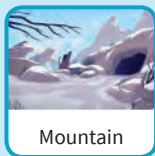
Mountain

Choose a character.

Dragon

ADD THIS CODE

Dragon

```
when [flag] clicked
hide
go to x: -240 y: -60
show
glide 2 secs to x: 0 y: -60
```
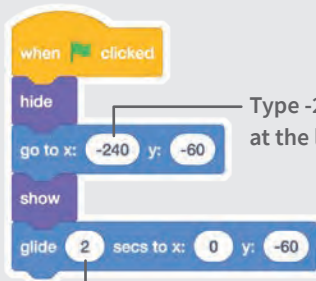
Type -240 to place your sprite at the left edge of the Stage.

Change this number to glide faster or slower.

TIP

Change the size of a sprite by typing a smaller or larger number.

Sprite   Dragon   ↔ x   -36

Show ◉ ◯   Size   100   Dir

Size 50

Size 100

Size 150
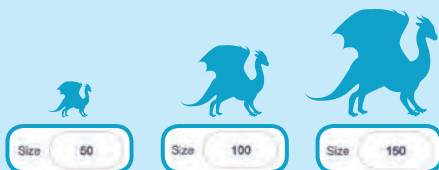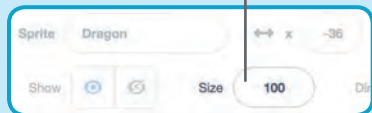
Respond to a Character

Coordinate a conversation so that one character talks after another.
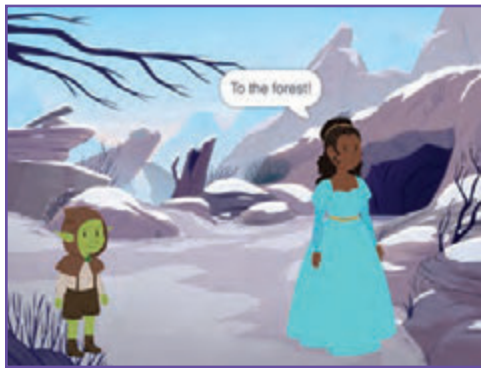
SCRATCH

Respond to a Character

GET READY

Choose a backdrop.
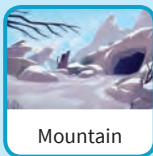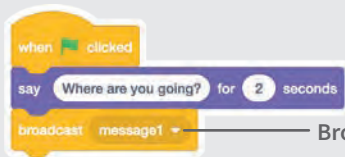
Mountain

Choose two characters.

Goblin

Princess

ADD THIS CODE

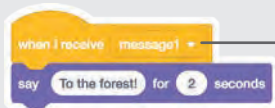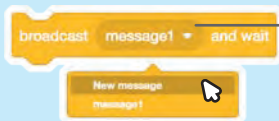Click the thumbnail for each character, and then add its code.

Goblin

```
when [flag] clicked
say  Where are you going?  for  2  seconds
broadcast  message1 ▾
```

Broadcast a message.

Princess

```
when i receive  message1 ▾
say  To the forest!  for  2  seconds
```

Tell this character what to do when it receives the broadcast.

TIP

```
broadcast  message1 ▾  and wait
   New message
   message1
```

You can click the drop-down menu to add a new message.

Add a Scene

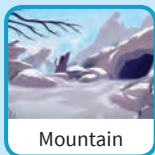Create multiple scenes with different backdrops and characters.
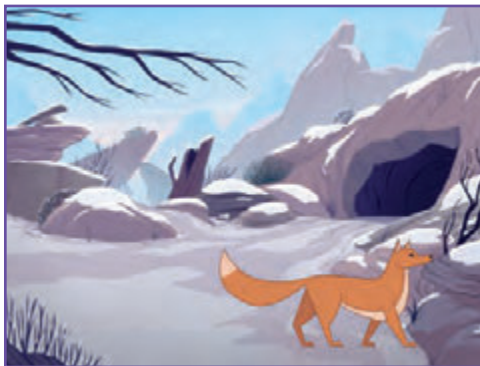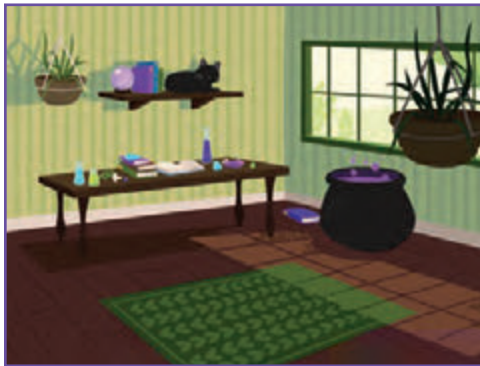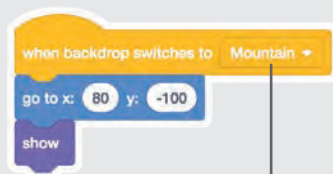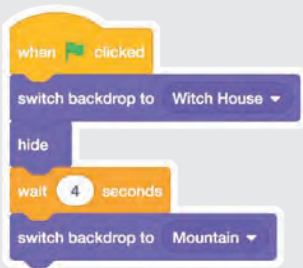
SCRATCH

Add a Scene

GET READY

Choose two backdrops.

Witch House

Mountain

Choose a character.

Fox

ADD THIS CODE

Fox

```
when [green flag] clicked
switch backdrop to Witch House ▾
hide
wait 4 seconds
switch backdrop to Mountain ▾
```

```
when backdrop switches to Mountain ▾
go to x: 80 y: -100
show
```

Choose the backdrop name from the menu.

TRY IT

Click the green flag to start. —
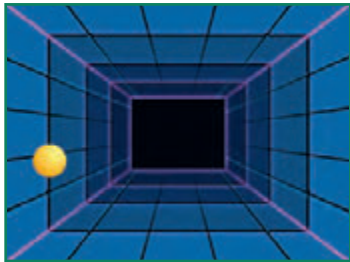
Pong Game Cards
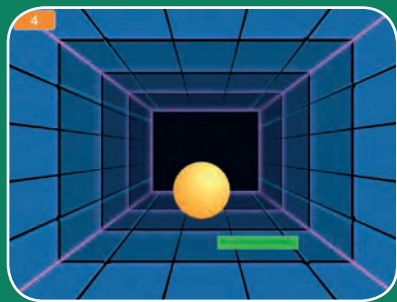
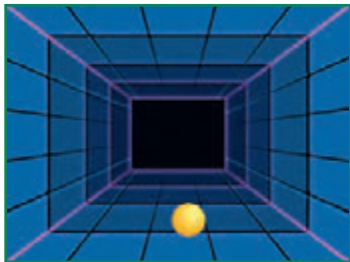**Make a bouncing ball game and score points to win!**

scratch

Pong Game Cards

Use these cards in this order:

1. Bounce Around
2. Move the Paddle
3. Bounce off the Paddle
4. Game Over
5. Score Points
6. Win the Game

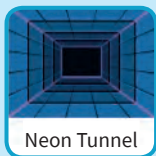scRATcH

Bounce Around

Make a ball move around the Stage.
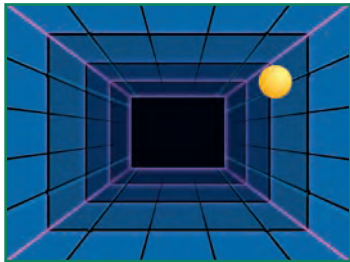
SCRATCH

Bounce Around

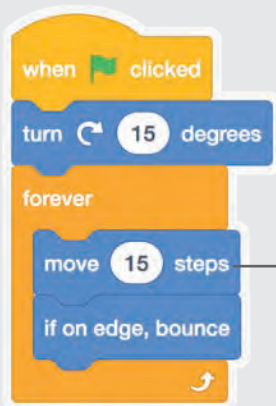## GET READY

Choose a backdrop.

Neon Tunnel

Choose a ball.

Ball

ADD THIS CODE

Ball

```
when [flag] clicked
turn ↻ 15 degrees
forever
    move 15 steps
    if on edge, bounce
```
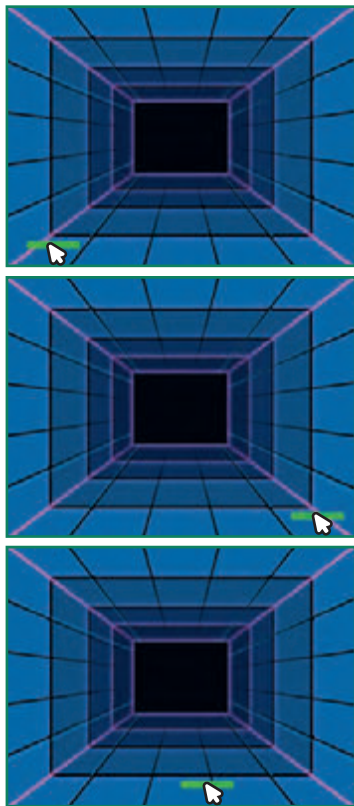
Type a larger number
to move faster.

TRY IT

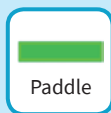Click the green flag to start.

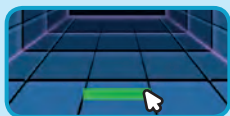# Move the Paddle

Control a paddle by moving your mouse pointer.
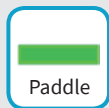
SCRATCH

Move the Paddle

GET READY

Paddle

Choose a sprite for hitting the ball, like Paddle.

Then, drag your paddle to the bottom of the Stage.

ADD THIS CODE

Paddle

```
when [flag] clicked
forever
    set x to (mouse x)
```

Insert the **mouse x** block into the **set x to** block.

```
set x to (mouse x)
```
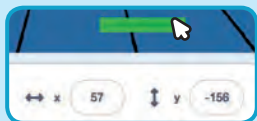
TRY IT

Click the green flag to start.

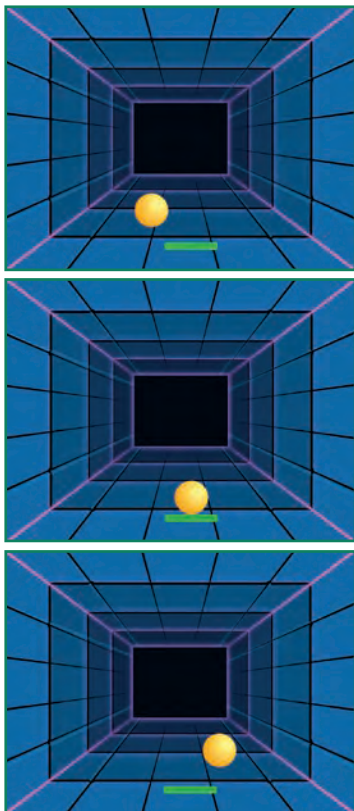Move your mouse pointer to move the paddle.

TIP

You can see the **x** position of the paddle change as you move the mouse pointer across the Stage.

↔ x 57   ↕ y -156

Bounce off the Paddle
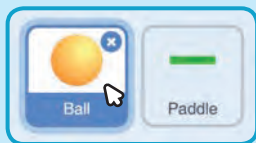
Make the ball bounce off the paddle.

SCRATCH

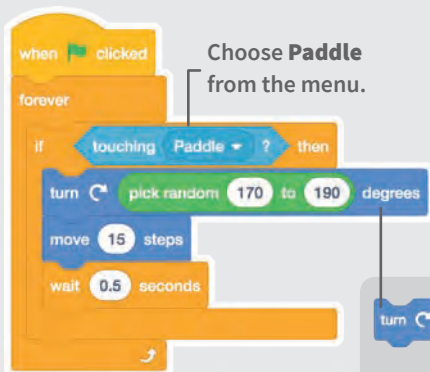# Bounce off the Paddle

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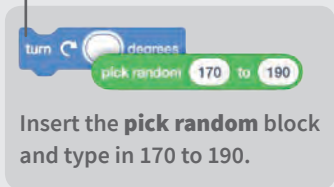
GET READY

Click to select the Ball sprite.

ADD THIS CODE

Add this new stack of blocks to your Ball sprite.
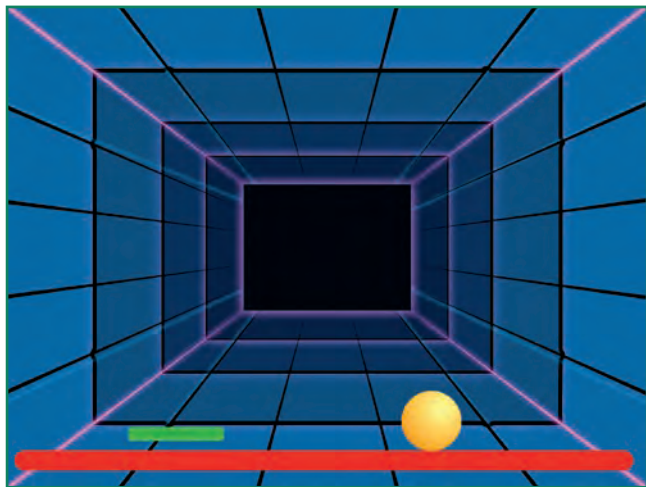

Ball

Choose **Paddle** from the menu.

```
when [flag] clicked
forever
  if < touching Paddle ? > then
    turn ↻ (pick random 170 to 190) degrees
    move 15 steps
    wait 0.5 seconds
```

```
turn ↻ ( ) degrees
  pick random 170 to 190
```

Insert the **pick random** block and type in 170 to 190.

TRY IT
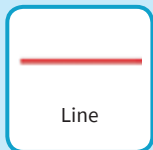
Click the green flag to start. ⟶ [green flag] [red stop]

Game Over

Stop the game if the ball hits the red line.
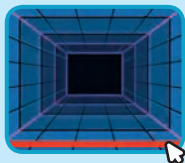
Game Over

GET READY

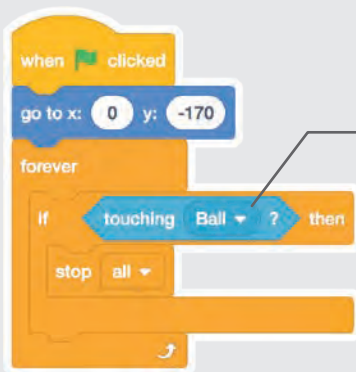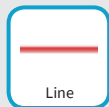Choose the sprite called Line.

Drag the Line sprite to the bottom of the Stage.

ADD THIS CODE

Line

```
when [green flag] clicked
go to x: 0 y: -170
forever
    if < touching Ball ? > then
        stop all
```
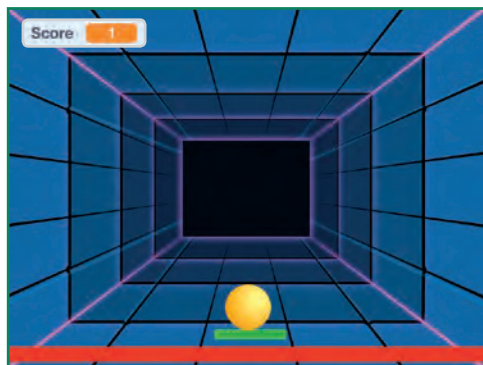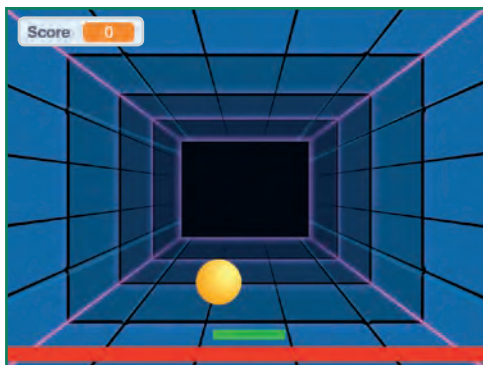
Choose **Ball** from the menu.

TRY IT

Click the green flag to start.

Score Points
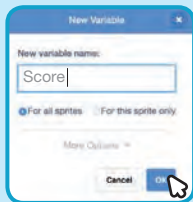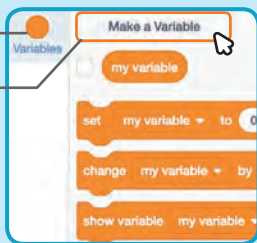
Add a point each time you hit
the ball with the paddle.

Score Points

GET READY

Choose **Variables**.
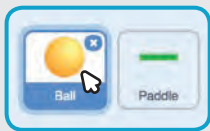
Click the **Make a Variable** button.

Name this variable **Score** and then click **OK**.

ADD THIS CODE

Click to select the Ball sprite.

Add this block and choose **Score** from the menu.

Use this block to reset the score. Choose **Score** from the menu.

Win the Game

When you score enough points,
display a winning message!

Win the Game

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GET READY

Use the **Text** tool to write
a message, like "You Won!"

YOU WON!

**Click the Paint icon
to make a new sprite.**

**You can change the font
color, size, and style.**

ADD THIS CODE

Code   Click the **Code** tab.

YOU WON!
You Won!
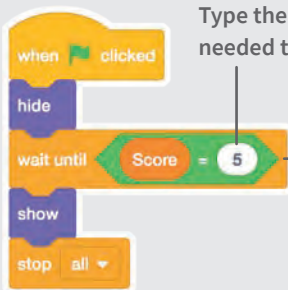
Type the number of points
needed to win the game.

```
when 🏴 clicked
hide
wait until  Score = 5
show
stop all ▾
```

= 5
Score

Insert the **Score** block into
the **equals** block from the
Operators category.

TRY IT

Click the green
flag to start.

Play until you score
enough points to win!

Let's Dance Cards

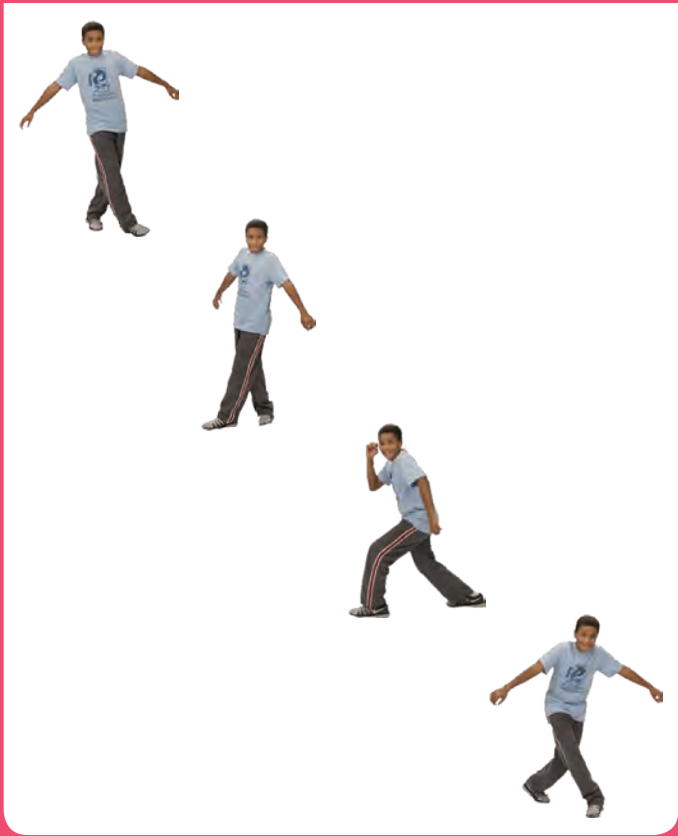**Design an animated dance scene with music and dance moves.**

scratch

Let's Dance Cards

Try these cards in any order:

- **Dance Sequence**
- **Dance Loop**
- **Play Music**
- **Take Turns**
- **Starting Position**
- **Shadow Effect**
- **Interactive Dance**
- **Color Effect**
- **Leave a Trail**

Dance Sequence

Make an animated dance.

Dance Sequence
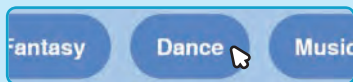
scratch.mit.edu

GET READY

Choose a dancer.

Ten80 Dance

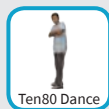Click the **Costumes** tab to see the different dance moves.

To see just the dance sprites, click the **Dance** category at the top of the Sprite Library.
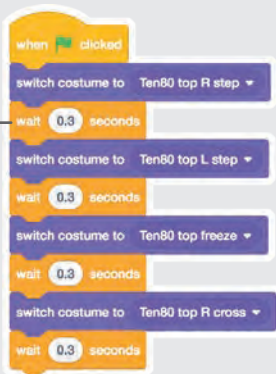
ADD THIS CODE

Click the **Code** tab.

Ten80 Dance

```
when [flag] clicked
switch costume to Ten80 top R step ▼
wait 0.3 seconds
switch costume to Ten80 top L step ▼
wait 0.3 seconds
switch costume to Ten80 top freeze ▼
wait 0.3 seconds
switch costume to Ten80 top R cross ▼
wait 0.3 seconds
```

Type how long to wait between dance moves.

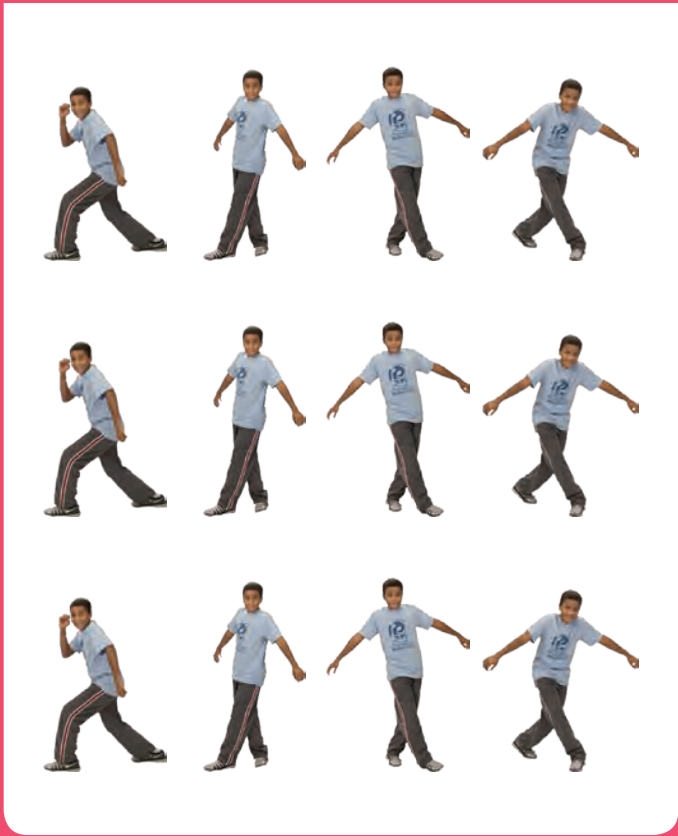**Pick different dance moves.**

TRY IT

Click the green flag to start.

Dance Loop

Repeat a series of dance steps.

Dance Loop

scratch.mit.edu

GET READY

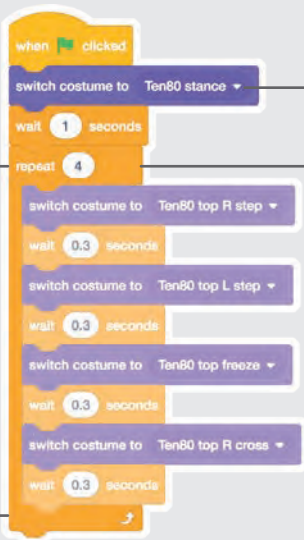**Go to the Sprite Library.**

Click the Dance category.

Ten80 Dance

Choose a dancer.

ADD THIS CODE

Ten80 Dance

when 🏳 clicked

switch costume to Ten80 stance ▾ —— **Choose a dance pose.**

wait 1 seconds

repeat 4 —— **Type how many times you want to repeat the dance.**

  switch costume to Ten80 top R step ▾

  wait 0.3 seconds

  switch costume to Ten80 top L step ▾

  wait 0.3 seconds

  switch costume to Ten80 top freeze ▾

  wait 0.3 seconds

  switch costume to Ten80 top R cross ▾

  wait 0.3 seconds

Add a repeat loop around your dance sequence.

repeat ◯

TRY IT

Click the green flag to start.

🏳 🔴

Play Music

Play and loop a song.

🔊

SCRATCH

Play Music

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GET READY

Click the Sounds tab.

Choose a backdrop.
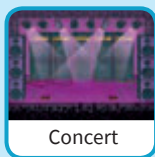
Concert

Choose a song from the **Loops** category.

ADD THIS CODE

Click the Code tab.

Concert

```
when [flag] clicked
repeat 10
    play sound Dance Celebrate ▾ until done
```
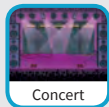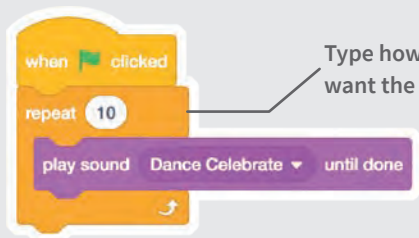
Type how many times you want the song to repeat.

TIP

Make sure to use `play sound Dance Celebrate ▾ until done` (not `start sound Dance Celebrate ▾`)

or else the music won't finish playing before it begins again.

Take Turns

Coordinate dancers so that one begins after the other finishes.

Take Turns

GET READY

Choose two dancers
from the Dance category.

Anina Dance
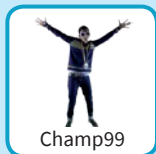
Champ99
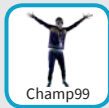
ADD THIS CODE

Anina Dance

```
when 🚩 clicked
switch costume to   anina top L step ▾
wait  0.3  seconds
switch costume to   anina top R step ▾
wait  0.3  seconds
switch costume to   anina stance ▾
broadcast   message1 ▾
```

Broadcast a message.

Champ99

```
when I receive   message1 ▾
say   My turn to dance!   for  1  seconds
repeat  4
    next costume
    wait  0.3  seconds
```

Tell this dancer sprite
what to do when it
receives the message.

TRY IT

Click the green flag to start. 🚩 ⬤

Starting Position

Tell your dancers where to start.

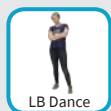# Starting Position

GET READY

Go to the
Sprite Library.

Click the **Dance** category.

LB Dance

Choose a dancer.

ADD THIS CODE

LB Dance
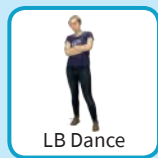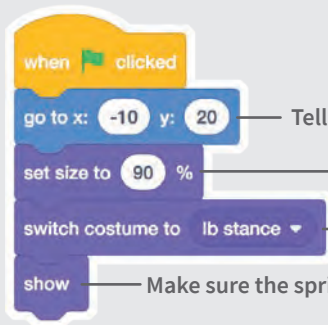
```
when [flag] clicked
go to x: -10 y: 20
set size to 90 %
switch costume to lb stance ▼
show
```
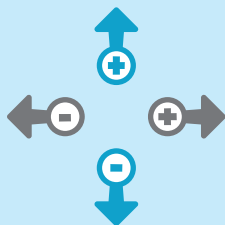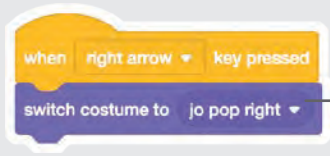
go to x: -10 y: 20 ——— Tell your sprite where to start.

set size to 90 % ——— Set the sprite's size.

switch costume to lb stance ▼ ——— Choose a starting costume.

show ——— Make sure the sprite is showing.

TIP

Use go to x: ( ) y: ( ) to set a sprite's position on the Stage.

x is the position on the Stage from left to right.

y is the position on the Stage from top to bottom.

Shadow Effect

Make a dancing silhouette.

SCRATCH

Shadow Effect

GET READY

Go to the Sprite Library.

Click the Dance category.

Jouvi Dance

Choose a dancer.

ADD THIS CODE

Choose **brightness** from the menu.

```
set  color ▾  effect to  0
    color
    fisheye
    whirl
    pixelate
    mosaic
    brightness
    ghost
```
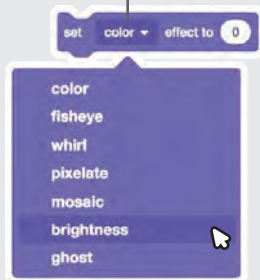
Set the brightness to **-100** to make the sprite completely dark.

```
when 🚩 clicked
set  brightness ▾  effect to  -100
forever
    next costume
    wait  0.3  seconds
```

TRY IT

Click the green flag to start. 🚩 🛑 **Click the stop sign to stop.**

Interactive Dance

Press keys to switch dance moves.

SCRATCH

Interactive Dance

scratch.mit.edu

GET READY

Go to the Sprite Library.

Click the Dance category.

Jouvi Dance

Choose a dancer.

ADD THIS CODE

Choose a different key to press for each dance move.
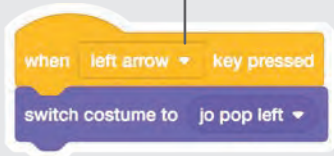
Pick a dance move from the menu.

```
when  left arrow ▼  key pressed
switch costume to  jo pop left ▼
```
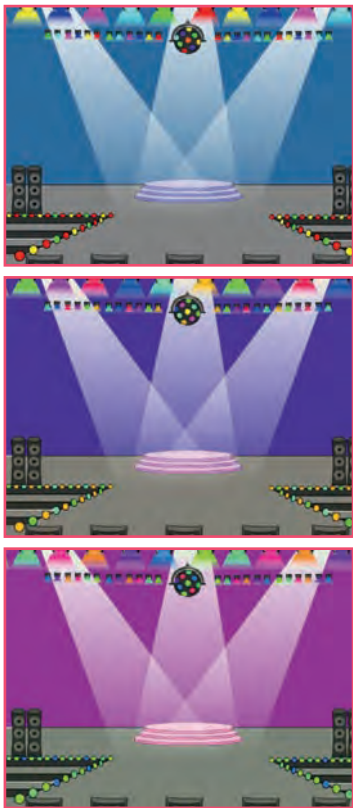
```
when  right arrow ▼  key pressed
switch costume to  jo pop right ▼
```

```
when  up arrow ▼  key pressed
switch costume to  jo top stand ▼
```

```
when  down arrow ▼  key pressed
switch costume to  jo pop down ▼
```
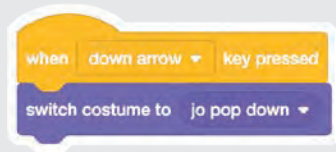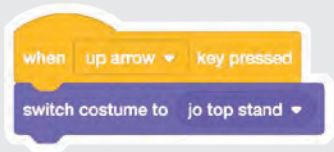
TRY IT

Press the arrow keys on your keyboard.

Color Effect

Make the backdrop change colors.

SCRATCH

Color Effect

GET READY

Choose a backdrop.

Spotlight

ADD THIS CODE

Spotlight

```
when 🏳 clicked
forever
    change color ▾ effect by 25
    wait 0.3 seconds
```
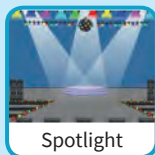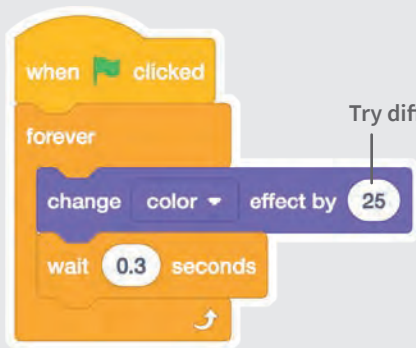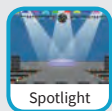
Try different numbers.

TRY IT

Click the green flag to start.

Leave a Trail

Stamp a trail as your dancer moves.
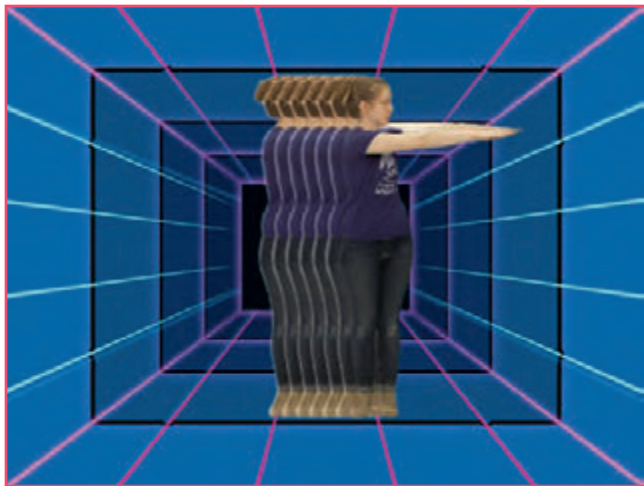
SCRATCH

Leave a Trail

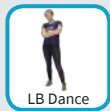scratch.mit.edu
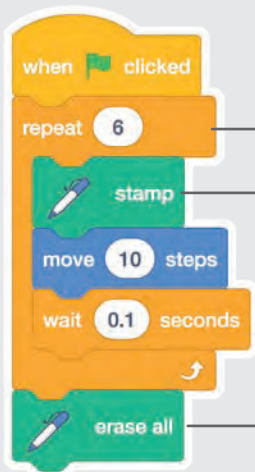
GET READY

Choose a dancer from the Dance category.

LB Dance

Click the **Extensions** button, and then click **Pen** to add the blocks.

ADD THIS CODE

LB Dance

```
when 🏳 clicked
repeat 6
    stamp
    move 10 steps
    wait 0.1 seconds
erase all
```

Type how many times to repeat.

Stamp an image of the sprite on the Stage.

Clear all the stamps.

TRY IT

Click the green flag to start.

Jumping Game Cards
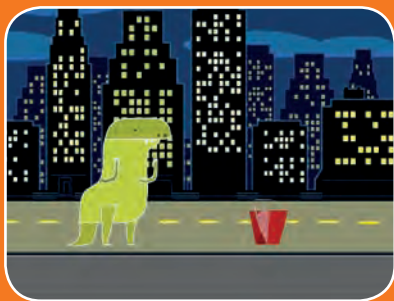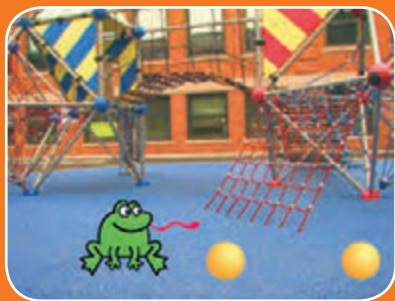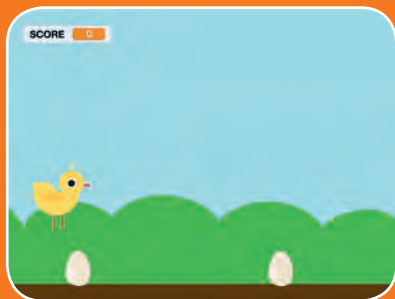
SCORE 0

Make a character jump over moving obstacles.

scratch

Jumping Game Cards

Use these cards in this order:

1. Jump

2. Go to Start

3. Moving Obstacle

4. Add a Sound

5. Stop the Game

6. Add More Obstacles

7. Score

Jump
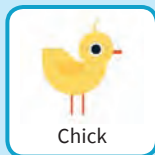
Make a character jump.

SCRATCH

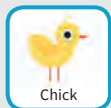# Jump
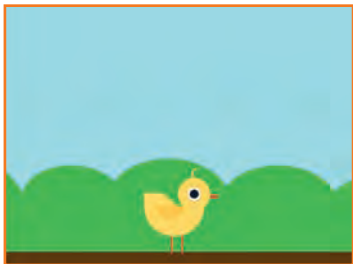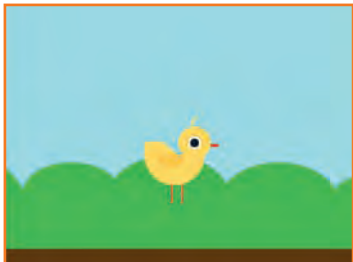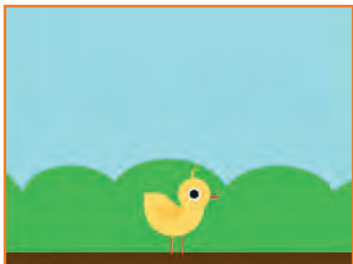
GET READY

Choose a backdrop.

Blue Sky

Choose a character, like Chick.

Chick

ADD THIS CODE

Chick

```
when space ▾ key pressed
repeat 10
  change y by 10
repeat 10
  change y by -10
```

Type a minus sign to go back down.

TRY IT

C V B N M

Press the **space** key on your keyboard.

Go to Start

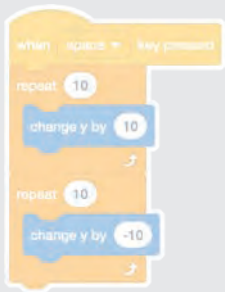Set the starting point for your sprite.
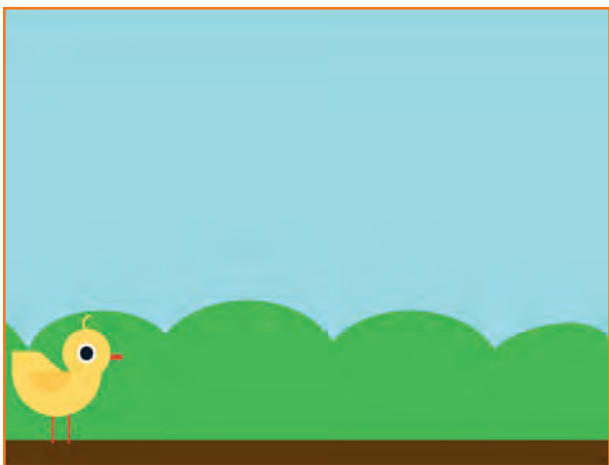
Go to Start

GET READY

Drag your character to where you want it.

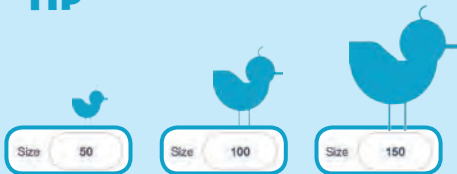When you move your character, its **x** and **y** position will update in the blocks palette.

Now when you drag out a **go to** block, it will set to your character's new position.

ADD THIS CODE

Chick
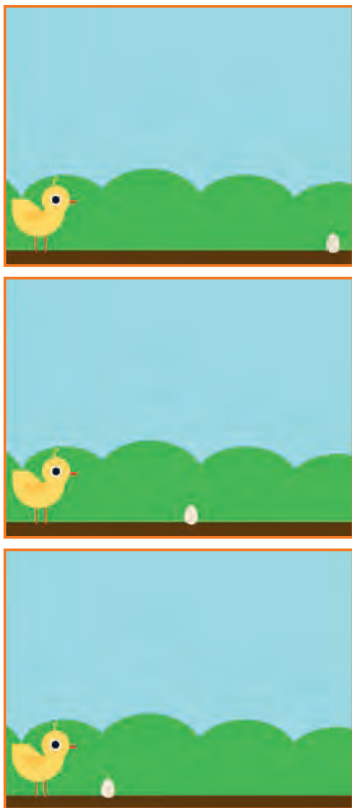

Set the starting position. (Your numbers may be different.)

TIP

Change the size of a sprite by typing a smaller or larger number.

Moving Obstacle

**Make an obstacle move
across the Stage.**

SCRATCH

Moving Obstacle

GET READY
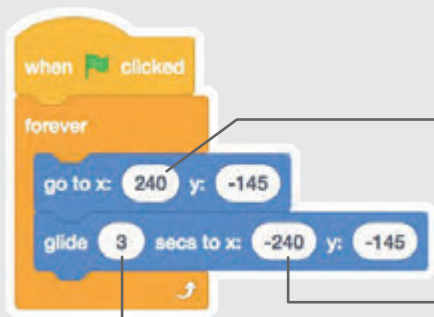
Choose a sprite to be an obstacle, such as Egg.

Egg

ADD THIS CODE

Egg

```
when [flag] clicked
forever
    go to x: 240 y: -145
    glide 3 secs to x: -240 y: -145
```

Start at the right edge of the Stage.

Glide to the left edge of the Stage.
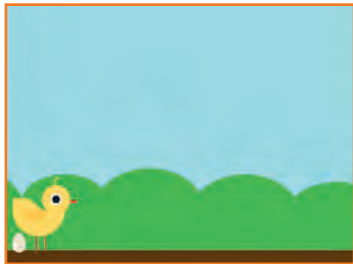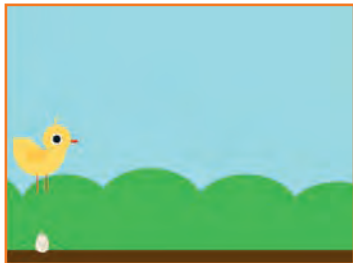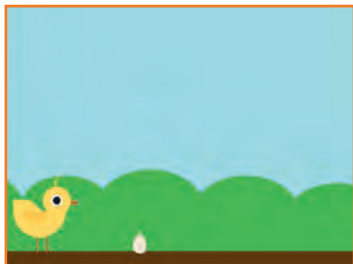
Type a smaller number to go faster.

TRY IT

Click the green flag to start.

C V B N M

Press the **space** key on your keyboard.
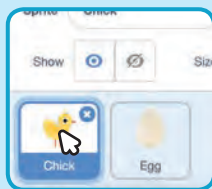
Add a Sound
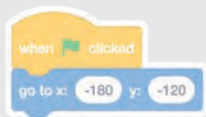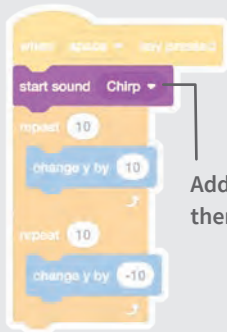
Play a sound when your sprite jumps.

Add a Sound

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GET READY

Click to select the Chick sprite.

ADD THIS CODE

Chick

start sound Chirp ▾

Add the **start sound** block, then select a sound.

when 🏳 clicked
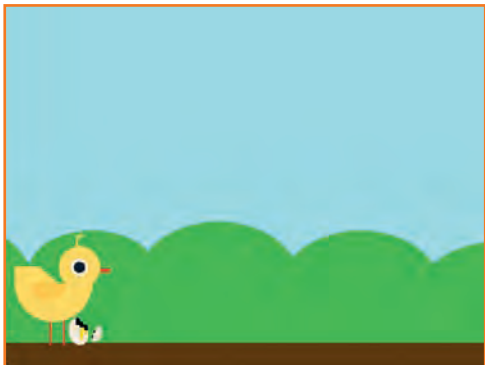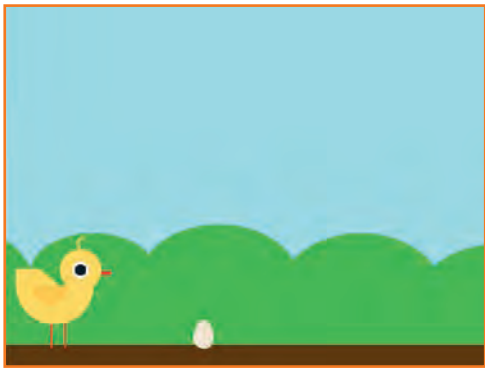go to x: -180 y: -120

TRY IT

Click the green flag to start.

C V B N M

Press the **space** key on your keyboard.

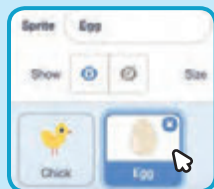# Stop the Game

Stop the game if your sprite touches the egg.
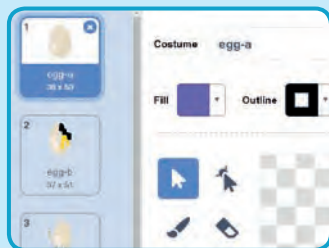
SCRATCH

Stop the Game

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GET READY

Click to select the Egg sprite.

Costumes

Click the **Costumes** tab to see the Egg sprite's costumes.

ADD THIS CODE

Code Click the **Code** tab and add this code.

Egg

```
when [flag] clicked
switch costume to (egg-a ▾)
wait until < touching (Chick ▾) ? >
switch costume to (egg-b ▾)
stop (all ▾)
```

Insert the **touching** block and choose **Chick** from the menu.

touching (mouse-pointer ▾) ?

mouse-pointer
edge
Chick

Choose a second costume for the Egg sprite to change to.
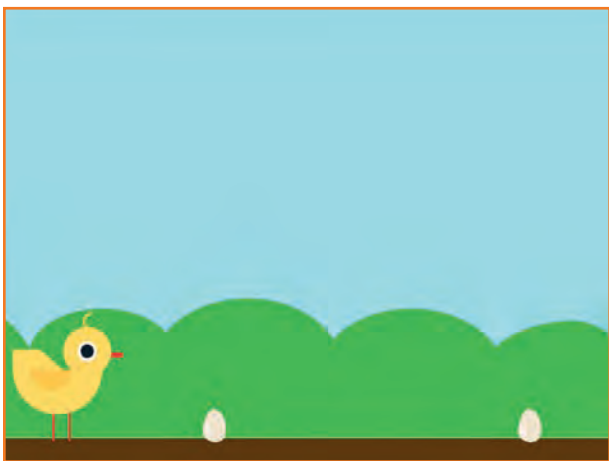
TRY IT

Click the green flag to start.

C V B N M

Press the **space** key on your keyboard.

Add More Obstacles
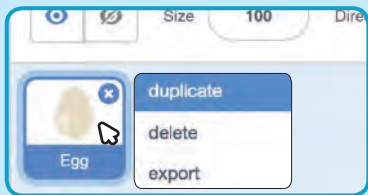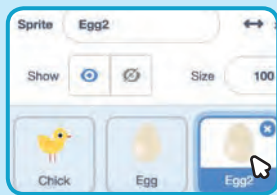
Make the game harder by
adding more obstacles.

SCRATCH

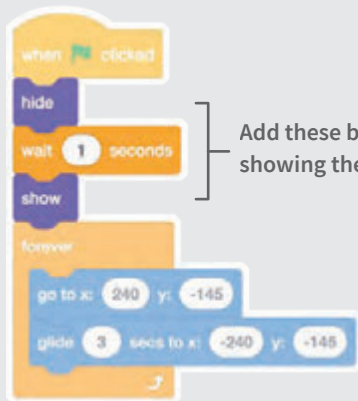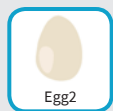# Add More Obstacles

GET READY

To duplicate the Egg sprite, right-click (Mac: control-click) on the thumbnail, and then choose **duplicate**.

Click to select Egg2.

ADD THIS CODE

Egg2

```
when [green flag] clicked
hide
wait (1) seconds
show
forever
  go to x: (240) y: (-145)
  glide (3) secs to x: (-240) y: (-145)
```
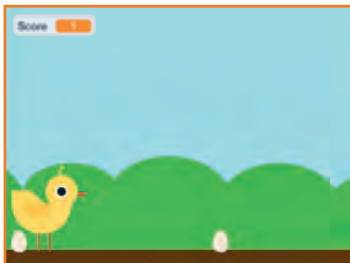
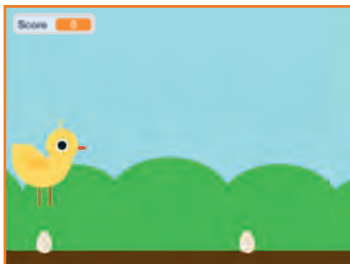Add these blocks to wait before showing the second egg.
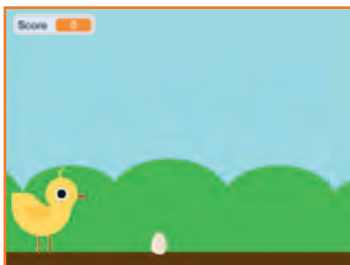
TRY IT
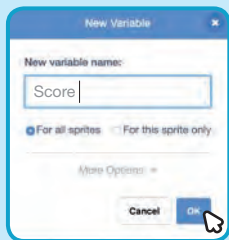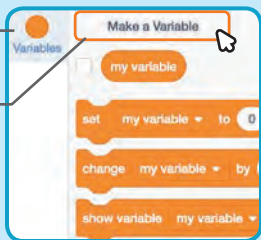
Click the green flag to start. ⟶

Score

Add a point each time your sprite
jumps over an egg.
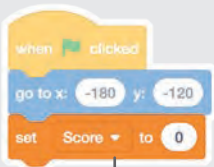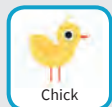
Score

GET READY

Choose **Variables**.

Click the **Make a Variable** button.
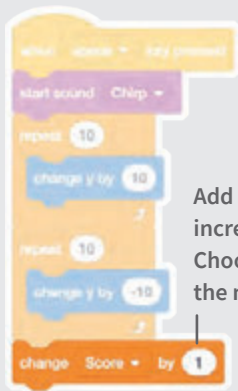
Name this variable **Score** and then click **OK**.

ADD THIS CODE

Click the Chick sprite and add two blocks to your code:

Chick

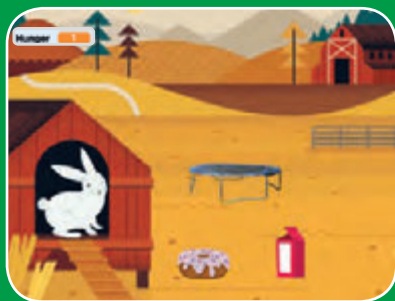Add this block and then choose **Score** from the menu.

Add this block to increase the score. Choose **Score** from the menu.

TRY IT

Jump over the eggs to score points!

Virtual Pet Cards
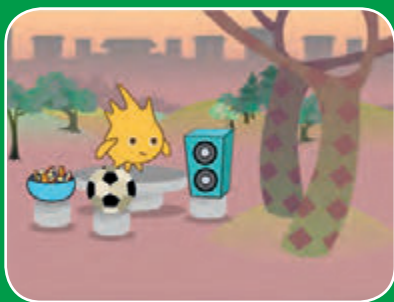
Create an interactive pet that
can eat, drink, and play.

Virtual Pet Cards

Use these cards in this order:

1. **Introduce Your Pet**

2. **Animate Your Pet**

3. **Feed Your Pet**

4. **Give Your Pet a Drink**

5. **What Will Your Pet Say?**

6. **Time to Play**

7. **How Hungry?**

Introduce Your Pet

Choose a pet and have it say hello.

scratch

Introduce Your Pet

GET READY

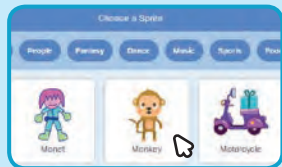**Choose a backdrop, like Garden Rock.**

Garden Rock

Choose a sprite to be your pet, like Monkey.

Monkey

Pick a sprite with more than one costume.
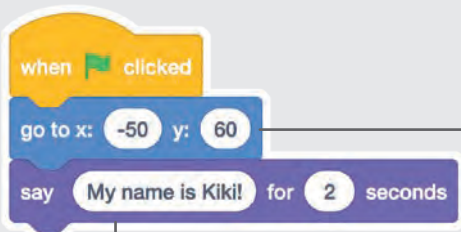
Scroll over sprites in the Sprite Library to see their different costumes.

ADD THIS CODE

Drag your pet to where you want it on the Stage.

Monkey

```
when 🚩 clicked
go to x: -50 y: 60
say My name is Kiki! for 2 seconds
```

Set its position. (Your numbers may be different.)

Type what you want your pet to say.

TRY IT

Click the green flag to start.

Animate Your Pet
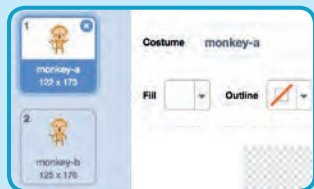
Bring your pet to life.

scratch

Animate Your Pet

GET READY

Costumes   Click the **Costumes** tab to see your pet's costumes.

ADD THIS CODE

Code   Click the **Code** tab and add this code.

Monkey

```
when this sprite clicked
start sound Chee Chee ▾
repeat 4
    switch costume to monkey-a ▾      ——— Choose a costume.
    wait 0.2 seconds
    switch costume to monkey-b ▾      ——— Choose a different
    wait 0.2 seconds                          costume.
```

TRY IT

Click your pet.

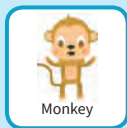# Feed Your Pet

Click the food to feed your pet.

SCRATCH

Feed Your Pet

GET READY

◀)) Sounds

Click the **Sounds** tab.

Monkey

Choose a sound from the
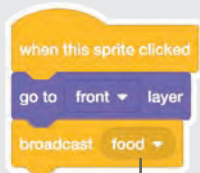Sounds Library, like Chomp.

Choose a food sprite,
like Bananas.

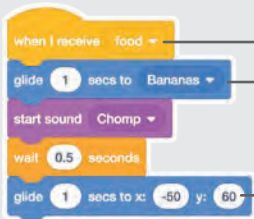Bananas

ADD THIS CODE

Code Click the **Code** tab.

Bananas

```
broadcast message1 ▾
```
```
New message
```

Select **New message**
and name it **food**.

```
when this sprite clicked
go to  front ▾  layer
broadcast  food ▾
```

Broadcast the **food** message.

Select your pet.

Monkey

```
when I receive  food ▾
glide  1  secs to  Bananas ▾
start sound  Chomp ▾
wait  0.5  seconds
glide  1  secs to x:  -50  y:  60
```

Choose **food** from the menu.

Choose **Bananas** from
the menu.

Glide to the starting position.

TRY IT

Click the food.

Give Your Pet a Drink

Give your pet some water to drink.

Give Your Pet a Drink

GET READY

Choose a drink sprite, like Glass Water.

Glass Water

ADD THIS CODE

Glass Water

```
when this sprite clicked
go to front layer
broadcast drink
wait 1 seconds
switch costume to glass water-b
start sound Water Drop
wait 1 seconds
switch costume to glass water-a
```

— Broadcast a new message.

— Switch to the empty glass.

— Switch to the full glass.

Tell your pet what to do when it receives the message.

Monkey

```
when I receive drink
glide 1 secs to Glass Water
wait 1 seconds
glide 1 secs to x: -50 y: 60
```

— Choose **drink** from the menu.

— Choose **Glass Water** from the menu.

— Glide to the starting position.

TRY IT

Click the drink to start.

What Will Your Pet Say?

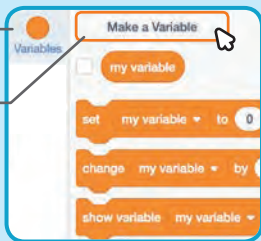**Let your pet choose what it will say.**
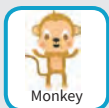
What Will Your Pet Say?

GET READY

Choose **Variables**.

Click the **Make a Variable** button.

Name this variable **Choice** and then click **OK**.

ADD THIS CODE

Monkey

Insert the **pick random** block.

Insert the **Choice** block into the **equals** block from the Operators category.

Type things for your pet to say.

TRY IT

Click your pet to see what it says.

Time to Play
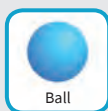
Have your pet play with a ball.

Time to Play

GET READY

Choose a sprite, like Ball.

Ball

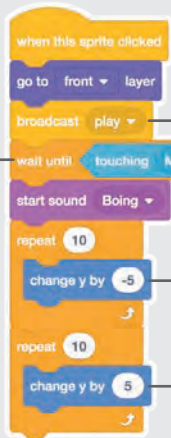## ADD THIS CODE

Ball

```
when this sprite clicked
go to  front ▾  layer
broadcast  play ▾
wait until  touching Monkey ▾ ?
start sound  Boing ▾
repeat  10
    change y by  -5
repeat  10
    change y by  5
```
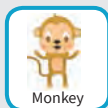
Broadcast a new message.

Choose **Monkey** from the menu.

Type a minus sign to make the ball move down.

A positive number makes the ball move up.

```
wait until  touching Monkey ▾ ?
```
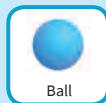
Insert the touching block into the **wait until** block.

Monkey

```
when I receive  play ▾
glide  1  secs to  Ball ▾
wait  1  seconds
glide  1  secs to x:  -50  y:  60
```

Choose **play** from the menu.

Pick **Ball** from the menu.

TRY IT

Click the ball.

How Hungry?

Keep track of how hungry your pet is.
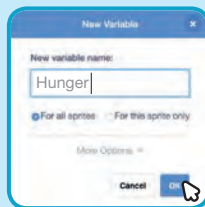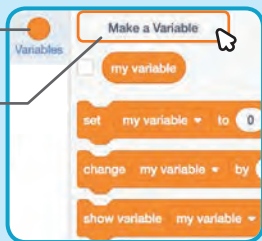
scratch

How Hungry?

scratch.mit.edu

GET READY

Choose **Variables**.
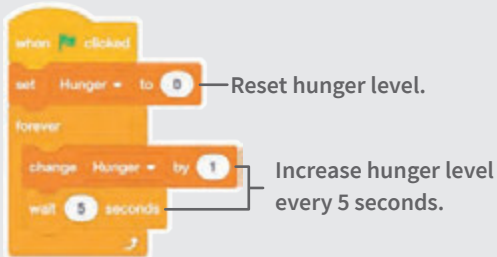
Click the **Make a Variable** button.

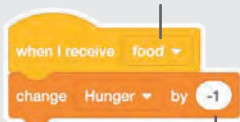Name this variable **Hunger** and then click **OK**.

ADD THIS CODE

Monkey

Reset hunger level.

Increase hunger level every 5 seconds.

Choose **food** from the menu.

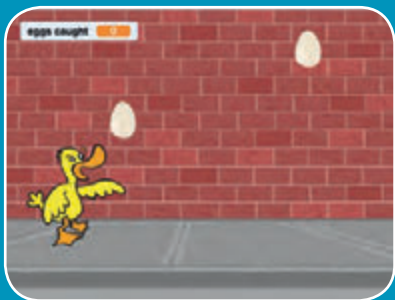Type a minus sign to make your pet less hungry when it gets food.

TRY IT

Click the green flag to start.

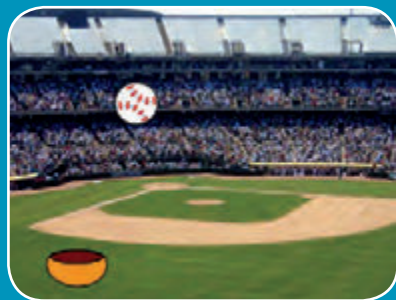Then click the food.

Catch Game Cards

Make a game where you catch things falling from the sky.
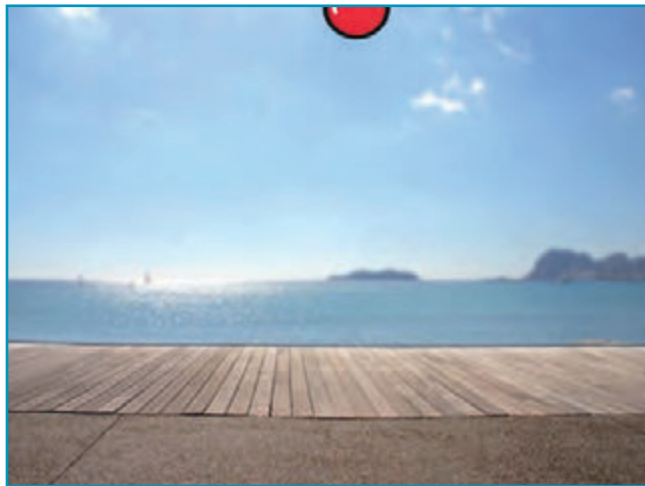
Catch Game Cards

Use these cards in this order:

1. Go to the Top
2. Fall Down
3. Move the Catcher
4. Catch It!
5. Keep Score
6. Bonus Points
7. You Win!

Go to the Top

Start from a random spot
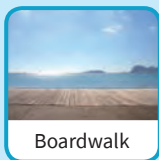at the top of the Stage.

SCRATCH

Go to the Top

GET READY
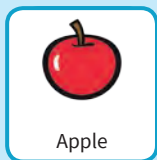
Choose a backdrop, like Boardwalk.

Boardwalk

Choose a sprite, like Apple.

Apple

ADD THIS CODE

Apple

```
when 🏳 clicked
go to  random position ▾
set y to  180
```
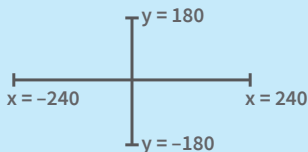
Type **180** to go to the top of the Stage.

TRY IT

Click the green flag to start.

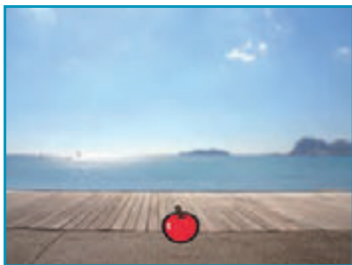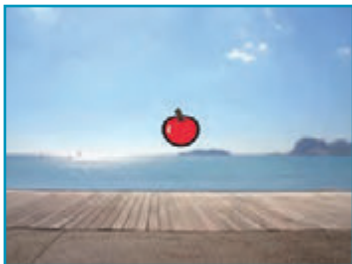## TIP

y is the position on the Stage from top to bottom.

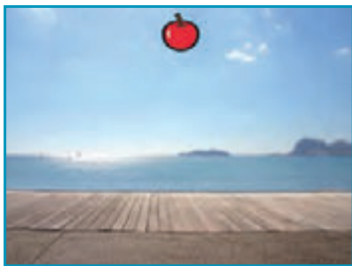y = 180

x = −240   x = 240

y = −180

Fall Down

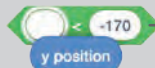## Make your sprite fall down.

SCRATCH

Fall Down

scratch.mit.edu

GET READY

Click to select
the Apple sprite.

ADD THIS CODE

Keep the previous code as is, and add this second stack of blocks:

Apple

Type a minus
sign to fall down.

Check if near the
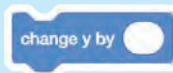bottom of the Stage.

Go back to the top
of the Stage.

```
when [flag] clicked
forever
  change y by -5
  if < y position < -170 > then
    go to random position ▾
    set y to 180
```

< y position < -170 >

Insert the **y position** block
into this block from the
Operators category.

TRY IT

Click the green flag to start. ——— [green flag] [stop sign] ——— Click the stop sign to stop.
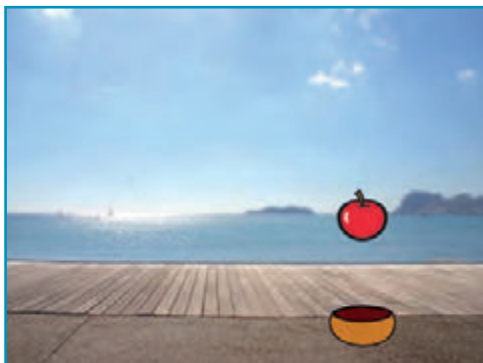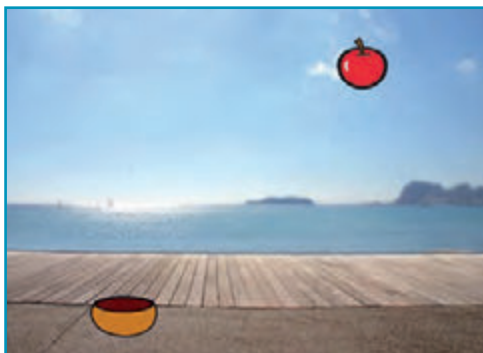
TIP

Use `change y by ◯` to move up or down.

Move the Catcher

Press the arrow keys so that the catcher moves left and right.

SCRATCH

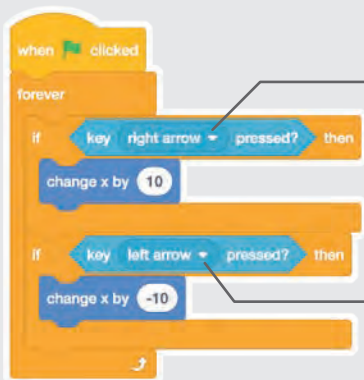# Move the Catcher

GET READY

Choose a catcher, like Bowl.

Bowl

Drag the bowl to the bottom of the Stage.

ADD THIS CODE

Bowl

```
when [flag] clicked
forever
  if < key [right arrow ▾] pressed? > then
    change x by (10)
  if < key [left arrow ▾] pressed? > then
    change x by (-10)
```

Choose the **right arrow** from the menu.

Choose the **left arrow** from the menu.
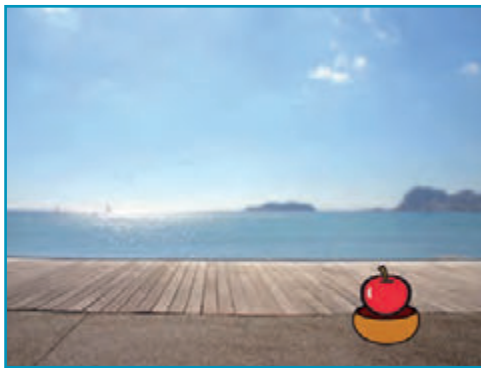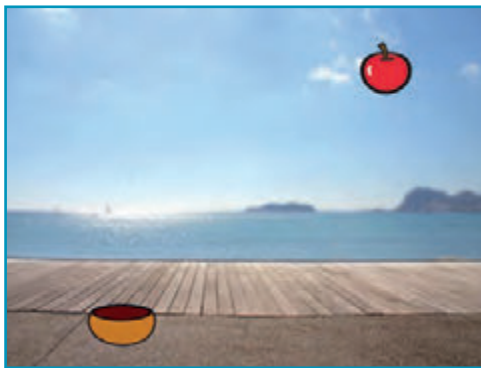
TRY IT

Click the green flag to start.

Press the arrow keys to move the catcher.
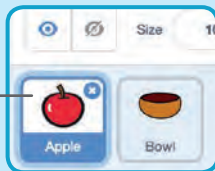
Catch It!

Catch the falling sprite.

Catch It!

GET READY

Click to select the Apple sprite.

ADD THIS CODE

Apple

```
when [flag] clicked
forever
    if < touching Bowl ▼ ? > then
        play sound pop ▼ until done
        go to random position ▼
        set y to 180
```
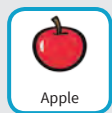
Choose **Bowl** from the menu.

Choose a sound.

TIP

🔊 Sounds

Click the **Sounds** tab if you want to add a different sound.

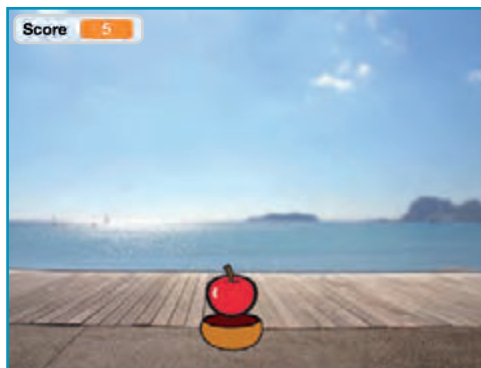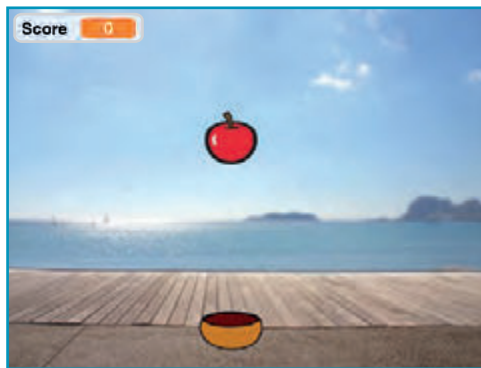Then choose a sound from the Sounds Library.

📋 Code

Click the **Code** tab when you want to add more blocks.

Keep Score

Add a point each time you
catch the falling sprite.

SCRATCH

Keep Score

GET READY

Choose **Variables**.

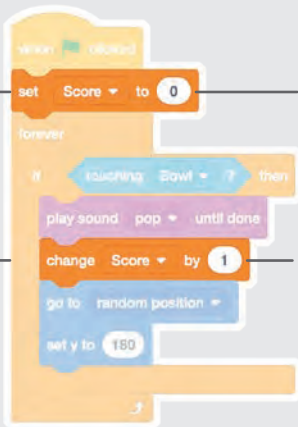Click the **Make a Variable** button.

Name this variable **Score** and then click **OK**.

ADD THIS CODE

Add two new blocks to your code:

Apple

Choose **Score** from the drop-down menu.

Add this block to reset the score.

Add this block to increase the score.

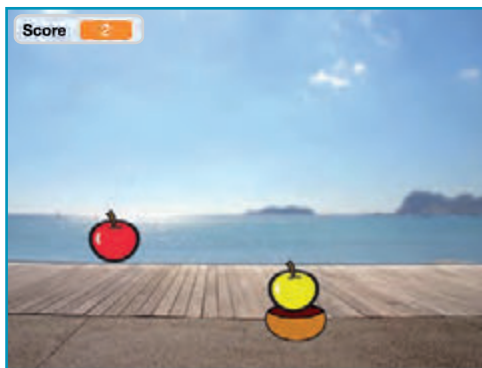## TRY IT

Click the green flag to start.

Then, catch apples to score points!
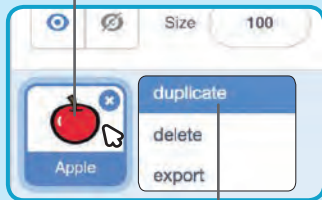
Bonus Points

SCRATCH
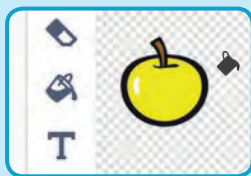
Bonus Points

scratch.mit.edu

GET READY

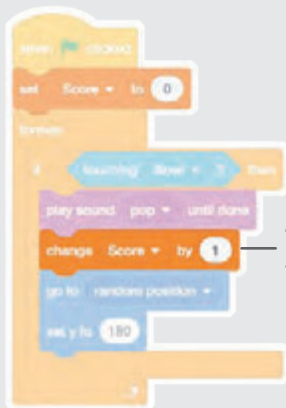To duplicate your sprite, right-click (Mac: control-click).

Choose **duplicate**.

Click the **Costumes** tab.

You can use the paint tools to make your bonus sprite look different.

ADD THIS CODE

Click the **Code** tab.

Apple2

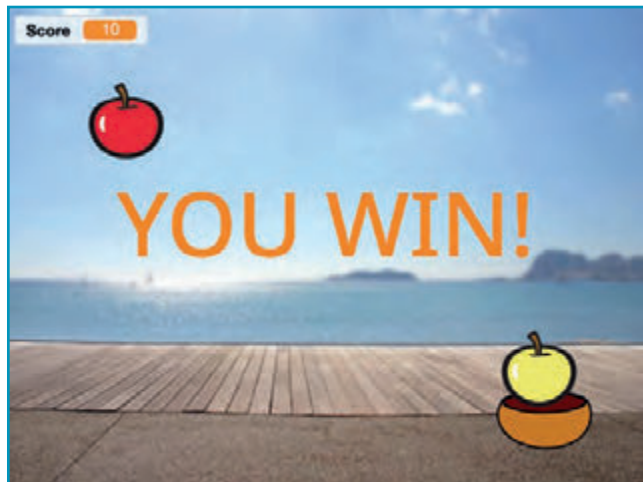Type how many points you get for catching a bonus sprite.

TRY IT

Catch the bonus sprite to increase your score!

You Win!

When you score enough points,
display a winning message!

SCRATCH

You Win!

GET READY

Click the **Paint** icon
to make a new sprite.

Use the **Text** tool to write a
message, like "You Win!"

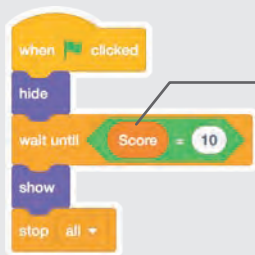You can change the font color,
size, and style.

ADD THIS CODE

Click the **Code** tab.

YOU WIN!
You Win!

```
when [flag] clicked
hide
wait until < Score = 10 >
show
stop all ▾
```

Insert the **Score** block from
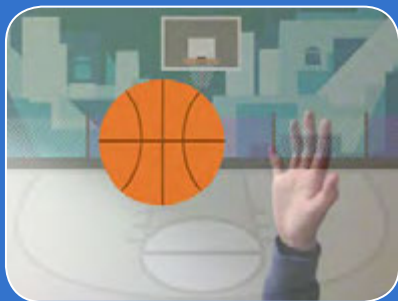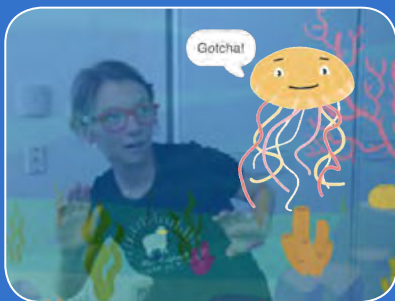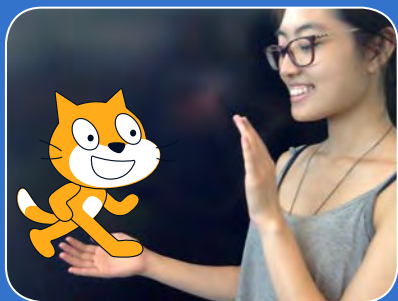the Variables category.

TRY IT

Click the green flag to start. ——

Play until you score
enough points to win!

Video Sensing Cards

Interact with projects using Video Sensing.

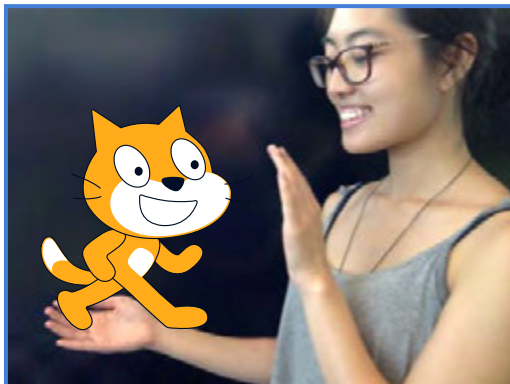scratch

Video Sensing Cards

Try these cards in any order:

- **Pet the Cat**
- **Animate**
- **Pop a Balloon**
- **Play the Drums**
- **Keep Away Game**
- **Play Ball**
- **Start an Adventure**

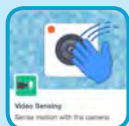# Pet the Cat

Make the cat meow when you touch it.

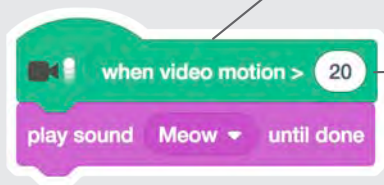SCRATCH

Pet the Cat

GET READY

Click the Extensions button
(at the bottom left of the screen).

Choose Video Sensing
to add the video blocks.

ADD THIS CODE

This will start when it senses video motion on a sprite.

when video motion > 20

play sound Meow until done

Cat

Type a number between 1 and 100 to change the sensitivity.

1 will start with very little movement, 100 requires a lot of movement.
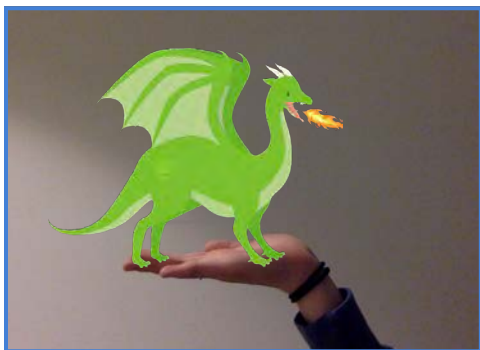
TRY IT

Move your hand to pet the cat.
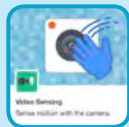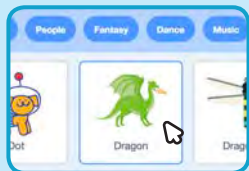
Animate

Move around to bring a sprite to life.

SCRATCH

Animate

GET READY

Click the **Extensions** button, then choose **Video Sensing**.

Video Sensing.
Sense motion with the camera.

Choose a sprite to animate.

Dragon

Pick a sprite with more than one costume.

People Fantasy Dance Music

Dot Dragon Drag

Scroll over sprites in the Sprite Library to see their different costumes.

ADD THIS CODE

Dragon

```
when video motion > 20
switch costume to  dragon-c ▾
wait 0.5 seconds
switch costume to  dragon-a ▾
```
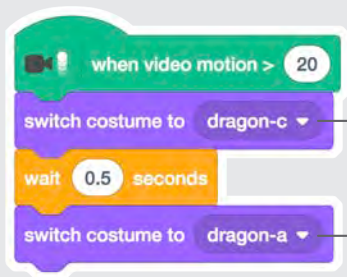
Choose one costume.

Choose a different costume.

TRY IT

Move around to animate the dragon.
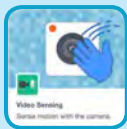
Pop a Balloon

Use your finger to pop a balloon.

SCRATCH

Pop a Balloon
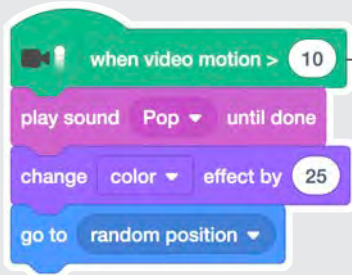
GET READY

Click the **Extensions** button, then choose **Video Sensing**.

Choose a sprite, like Balloon1.

ADD THIS CODE

Balloon1

when video motion > `10`

Type a larger number to make it harder to pop.

play sound `Pop ▾` until done

change `color ▾` effect by `25`

go to `random position ▾`

TRY IT

Use your finger to pop the balloon.

Play the Drums

Interact with sprites that play sounds.

SCRATCH

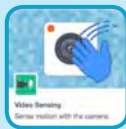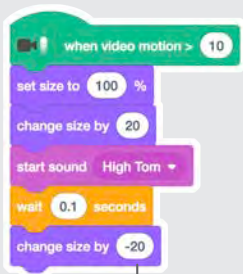# Play the Drums

GET READY

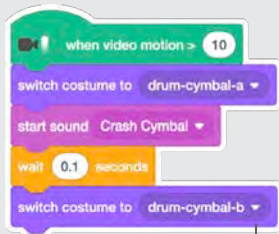Click the **Extensions** button, then choose **Video Sensing**.

Choose two sprites, like Drum and Drum-cymbal.

Drum

Drum-cymbal

ADD THIS CODE

Click on a drum to select it, then add its code.

Drum

Drum-cymbal

```
when video motion > 10
set size to 100 %
change size by 20
start sound High Tom
wait 0.1 seconds
change size by -20
```

Type a minus sign to get smaller.

```
when video motion > 10
switch costume to drum-cymbal-a
start sound Crash Cymbal
wait 0.1 seconds
switch costume to drum-cymbal-b
```
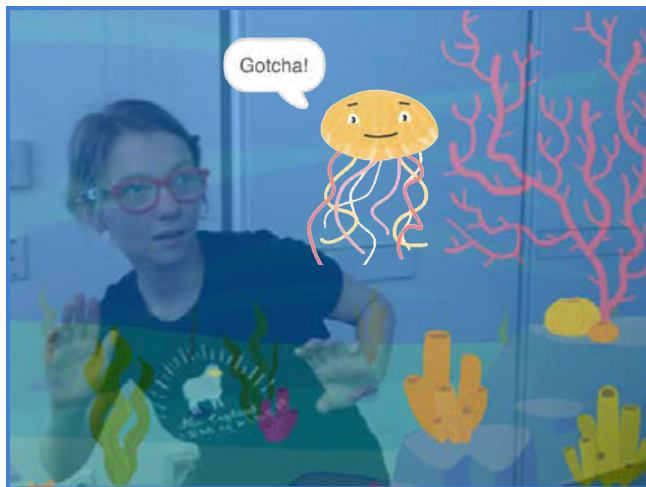
Choose a costume.

TRY IT

Use your hands to play the drums!
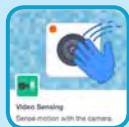
Keep Away Game

Move around to avoid a sprite.

Keep Away Game

GET READY

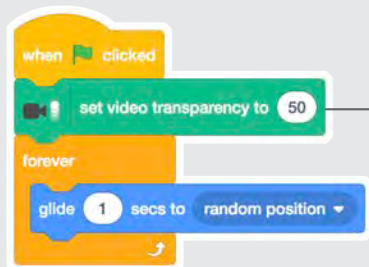**Click the Extensions** button, then choose **Video Sensing**.

Choose a backdrop, like Ocean.

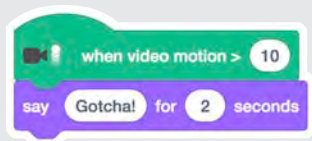**Choose a sprite,** like Jellyfish.

ADD THIS CODE

Jellyfish

```
when 🏳 clicked
set video transparency to 50
forever
    glide 1 secs to random position ▼
```

```
when video motion > 10
say Gotcha! for 2 seconds
```

Type a number between 0 and 100. (0 to show the video, 100 to make the video transparent.)
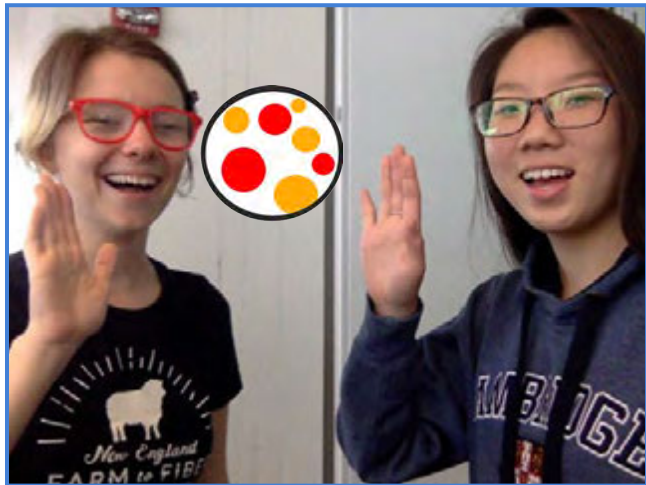
TRY IT

Move around to avoid the jellyfish.

Play Ball

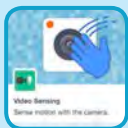Use your body to move a
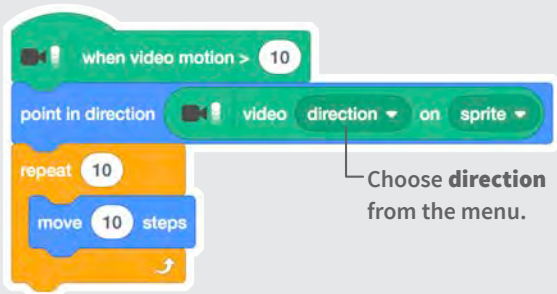sprite across the screen.
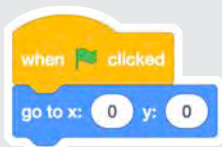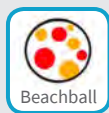
SCRATCH

Play Ball

scratch.mit.edu

GET READY

Click the Extensions button, then choose Video Sensing.

Beachball

Choose a sprite, like Beachball.

ADD THIS CODE

Beachball

```
when 🏳 clicked
go to x: 0 y: 0
```

```
when video motion > 10
point in direction 📹 video direction ▼ on sprite ▼
repeat 10
  move 10 steps
```
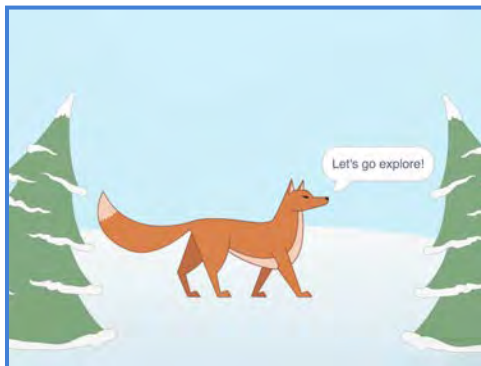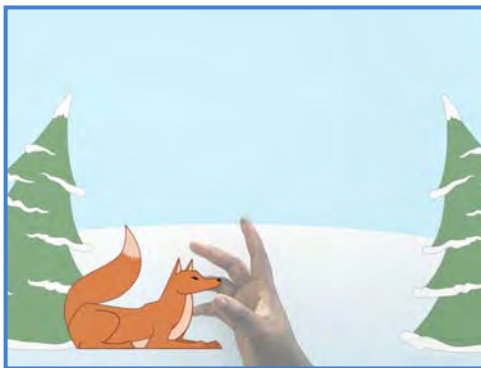
Choose **direction** from the menu.

TRY IT

**Use your hands to push the beach ball around the screen.
Try it with a friend!**

Start an Adventure!
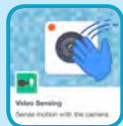
**Interact with a story by
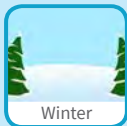moving your hands.**

SCRATCH

Start an Adventure!

GET READY

Click the **Extensions** button.

Choose a backdrop.

Choose a sprite.

Click the **Costumes** tab to see your sprite's other costumes.
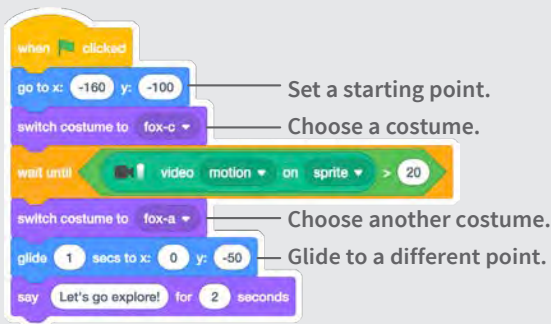
Costumes

Choose **Video Sensing**.

Winter

Fox
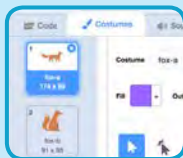
ADD THIS CODE

Code Click the Code tab.
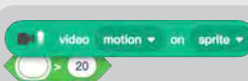
Insert the **video motion on sprite** block into the **greater than** block from the Operators category.

video motion ▾ on sprite ▾
> 20

when ⚑ clicked
go to x: -160 y: -100 — Set a starting point.
switch costume to fox-c ▾ — Choose a costume.
wait until ◉ video motion ▾ on sprite ▾ > 20
switch costume to fox-a ▾ — Choose another costume.
glide 1 secs to x: 0 y: -50 — Glide to a different point.
say Let's go explore! for 2 seconds

TRY IT

Click the green flag. Then wave to wake up the fox.