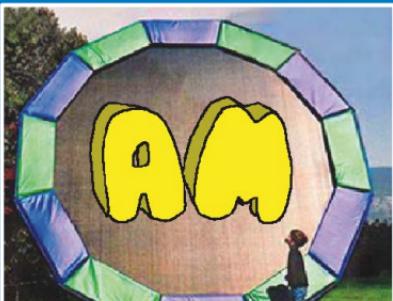


Animate a Name Cards



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



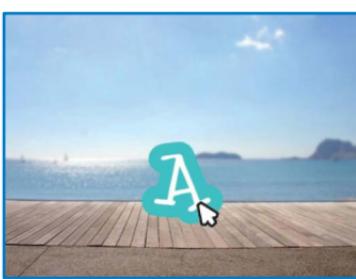
Animate a Name Cards

Try these cards in any order:

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

Color Clicker

Make a letter change color when you click it.



Animate a Name

1

SCRATCH

Color Clicker

scratch.mit.edu



GET READY



Choose a letter from the Sprite Library.



Choose a backdrop.



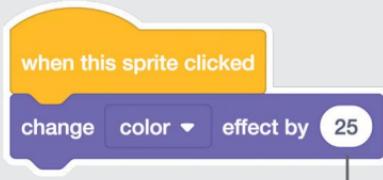
Food

Fashion

Letters

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

ADD THIS CODE



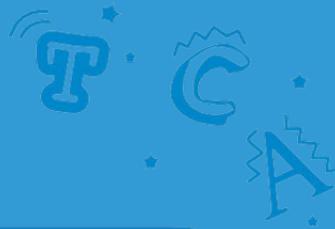
Try different numbers.

TRY



Click your letter.

Spin



Make a letter turn when you click it.



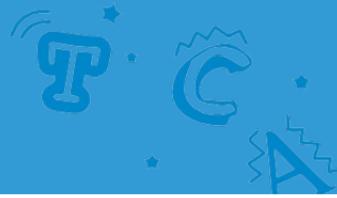
Animate a Name

2

SCRATCH

Spin

scratch.mit.edu



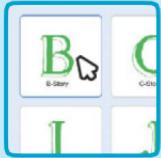
GET READY



Go to the Sprite Library.

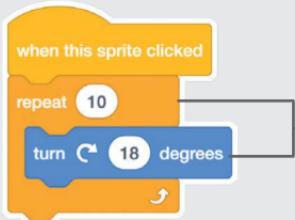


Click the Letters category.



Choose a letter sprite.

ADD THIS CODE



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.



Animate a Name

3

SCRATCH

Play a Sound

scratch.mit.edu



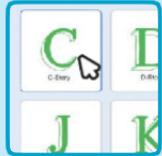
GET READY



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.



Choose a sound from the menu.

TRY IT

Click your letter.



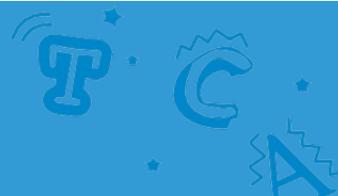
Dancing Letter

Make a letter move to the beat.



Dancing Letter

scratch.mit.edu



GET READY



Choose a backdrop.



Choose a letter from the Sprite Library.



Click the Extensions button
(at the bottom left).



Then click Music to add the music blocks.

ADD THIS CODE



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.



Change Size

scratch.mit.edu



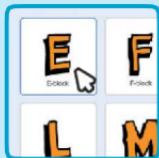
GET READY



Go to the Sprite Library.

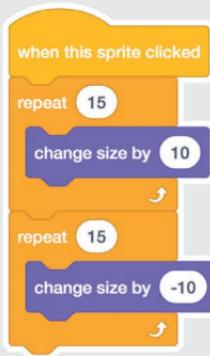


Click the Letters category.



Choose a letter sprite.

ADD THIS CODE



Type a minus sign to get smaller.

TRY IT

Click your letter.



TIP

Click this block to reset the size.



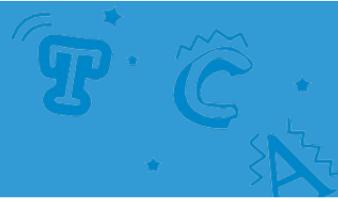
Press a Key

Press a key to make your letter change.



Press a Key

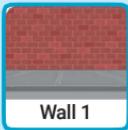
scratch.mit.edu



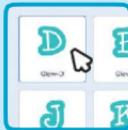
GET READY



Choose a backdrop.



Choose a letter from the Sprite Library.



ADD THIS CODE



Try different numbers.

TRY IT



Press the space key.

TIP



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

Glide Around

Make a letter glide smoothly from place to place.



Glide Around

scratch.mit.edu



GET READY



Choose a backdrop.



Choose a letter from the Sprite Library.



ADD THIS CODE



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.



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.



Animate a Character

1

SCRATCH

Move with Arrow Keys

scratch.mit.edu

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.



Animate a Character

2

SCRATCH

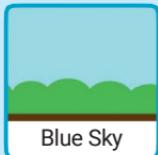
Make a Character Jump

scratch.mit.edu

GET READY



Choose a backdrop.



Blue Sky

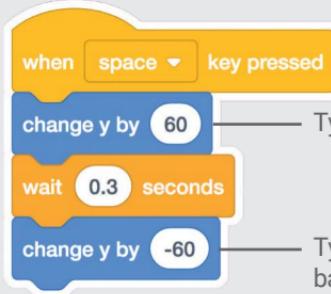


Choose a character.



Giga Walking

ADD THIS CODE



Type how high to jump.

Type a minus sign to go back down.

TRY IT



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

Switch Poses

Animate a character when you press a key.



Animate a Character

3

SCRATCH

Switch Poses

scratch.mit.edu



GET READY

Choose a character with multiple costumes, like Max.



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

Costumes

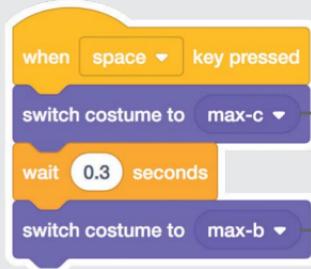


Click the **Costumes** tab to view all of your sprite's costumes.

ADD THIS CODE

Code

Click the **Code** tab.



Choose a costume.

Choose a different costume.

TRY IT



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

Glide from Point to Point

Make a sprite glide from point to point.



Glide from Point to Point

scratch.mit.edu

GET READY



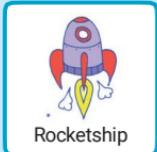
Choose a backdrop.



Nebula

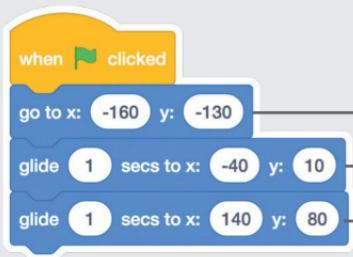


Choose a character.



Rocketship

ADD THIS CODE



Set the starting point.

Set another point to glide to.

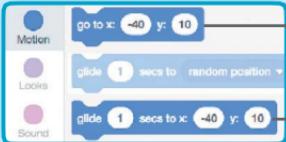
Set the end point.

TRY IT

Click the green flag to start.



TIP



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

Walking Animation

Make a character walk or run.



Walking Animation

scratch.mit.edu

GET READY



Choose a backdrop.



Jungle



Choose a walking or running sprite.



Unicorn Running

ADD THIS CODE



Unicorn Running



TRY IT



Click the green flag to start.

TIP



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.



Flying Animation

scratch.mit.edu



GET READY



Choose a
backdrop.



Canyon



Choose Parrot
(or another flying sprite).



Parrot

ADD THIS CODE

Glide across the screen

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

Choose one costume.
Choose another.

TRY IT

Click the green flag to start.



Talking Animation

Make a character talk.



Talking Animation

scratch.mit.edu



Choose Penguin 2.



Penguin

GET READY



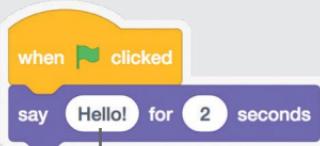
Click the **Costumes** tab to view the penguin's other costumes.



ADD THIS CODE



Click the **Code** tab.



Type what you want your character to say.



Choose one costume.

Choose another.

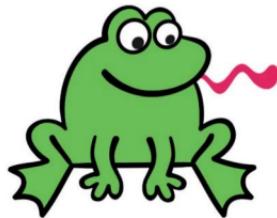
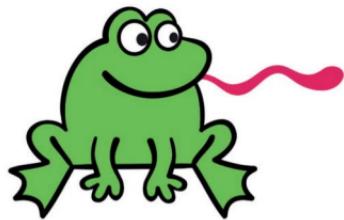
TRY IT

Click the green flag to start.



Draw an Animation

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



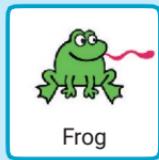
Draw an Animation

scratch.mit.edu

GET READY



Choose a character.



Frog



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.

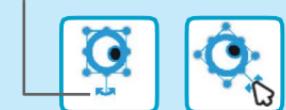
Click the **Select tool**.



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



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



ADD THIS CODE



Click the **Code** tab.

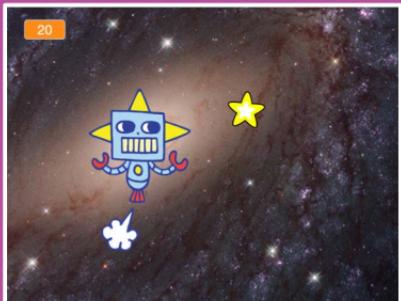
Use the **next costume** block to animate your character.

TRY IT



Click the green flag to start.

Chase Game Cards



Make a game where you chase a character to score points.



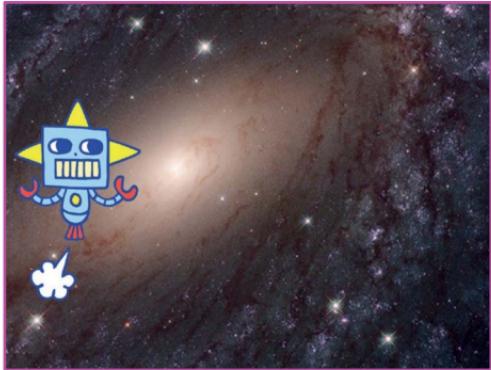
Chase Game Cards

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.



Move Left and Right

scratch.mit.edu



GET READY



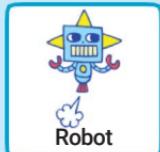
Choose a backdrop.



Galaxy



Choose a character.



Robot

ADD THIS CODE



Robot



Choose right arrow.



Choose left arrow.

Type a minus sign to move left.

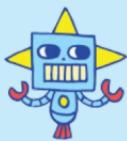
TRY IT

Press the arrow keys.



TIP

Type a negative number to move to the left.

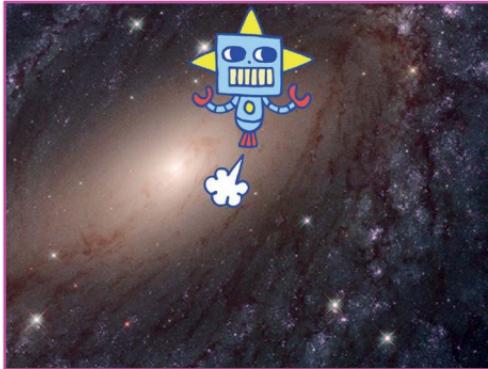


Type a positive number to move to the right.



Move Up and Down

Press arrow keys to move up and down.

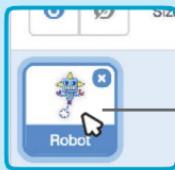


Move Up and Down

scratch.mit.edu

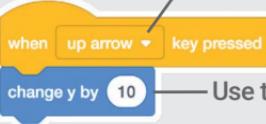


GET READY



Click your character to select it.

ADD THIS CODE



Choose up arrow.



Choose down arrow.

Use the **change y by** block to move up.

Type a minus sign to move down.

TRY IT

Press the arrow keys.



TIP

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



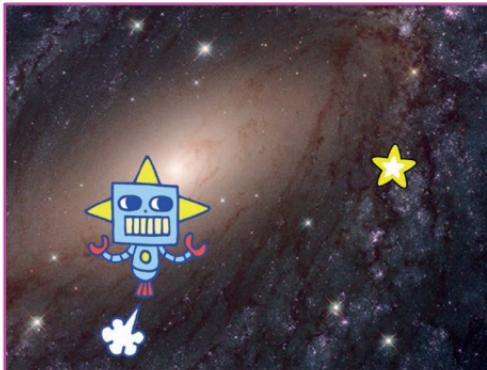
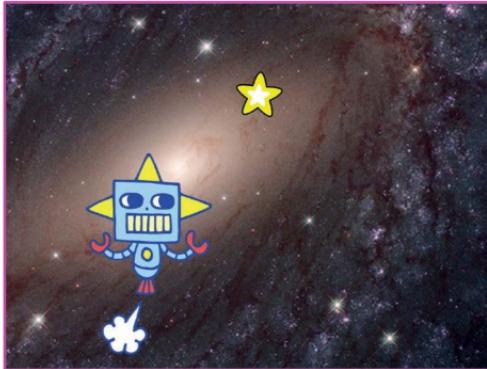
Type a positive number to move up.



Type a negative number to move down.

Chase a Star

Add a sprite to chase.



Chase a Star

scratch.mit.edu



GET READY



Choose a sprite to chase, like Star.

ADD THIS CODE



Type a smaller number (like 0.5) to make it glide faster.

TRY IT

Click the green flag to start.



Click the stop sign to stop.

Play a Sound

Play a sound when your character touches the star.

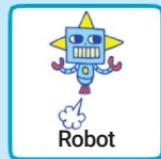


Play a Sound

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GET READY



Click to select
the Robot sprite.



Click the Sounds tab.



Choose a sound from the
Sounds Library, like
Collect.

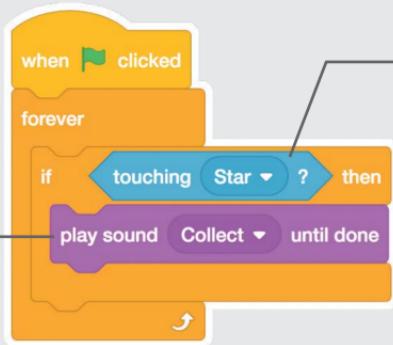
ADD THIS CODE



Click the Code tab and add this code.



Choose your
sound from
the menu.



Insert the touching block into the if then block.



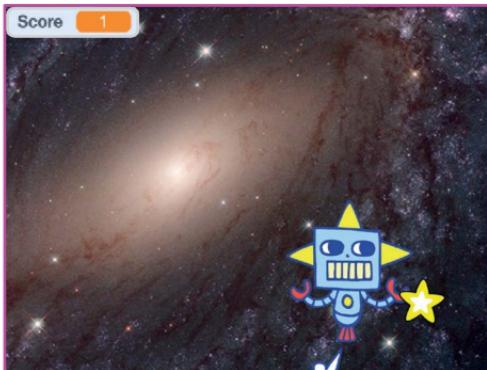
TRY IT

Click the green flag to start.



Add a Score

Score points when you touch the star.



Add a Score

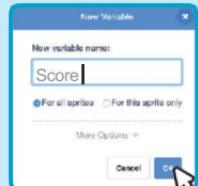
scratch.mit.edu



GET READY

Choose Variables.

Click the Make a Variable button.

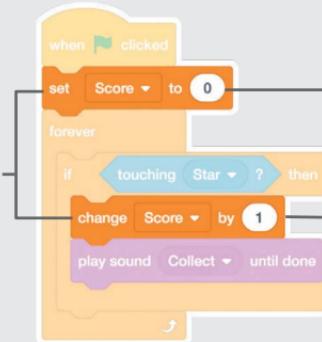


Name this variable Score and then click OK.

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 by value** block to increase the score.

Level Up!

Go to the next level.



Level Up!

scratch.mit.edu



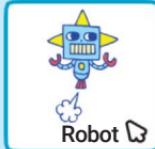
GET READY



Choose a second backdrop, like Nebula.



Nebula



Robot

Select the Robot

ADD THIS CODE

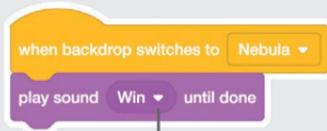


Insert the **Score** block into the **equals** block from the Operators category.



Choose your first backdrop.

Choose the backdrop to switch to.



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.

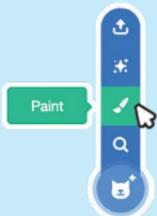


Victory Message

scratch.mit.edu



GET READY



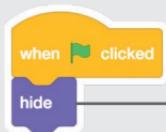
Click the **Paint** icon
to make a new sprite.

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

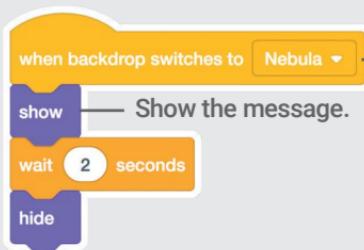


You can change the font
color, size, and style.

ADD THIS CODE



Hide the message at the beginning.



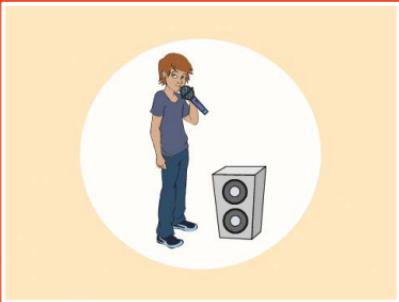
Choose the backdrop
for the next level.

TRY IT

Click the green flag to play your game.



Make Music Cards



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



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

Play a Drum

Press a key to make a drum sound.



Play a Drum

scratch.mit.edu

GET READY



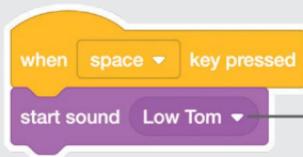
Choose a backdrop.



Choose a drum.



ADD THIS CODE



Select the sound you want from the menu.

TRY IT



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

Make a Rhythm

Play a loop of repeating drum sounds.



Make a Rhythm

scratch.mit.edu

GET READY



Choose a backdrop.



Choose a drum from the Music category.



Dance

Music

Sports

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

ADD THIS CODE



Type how many times you want to repeat.

0.25

seconds

Try different numbers to change the rhythm.

TRY IT



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

Animate a Drum

Switch between costumes to animate.



Animate a Drum

scratch.mit.edu

GET READY



Choose
a drum.



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.



Choose a sound
from the menu.

TRY IT

Press the **left arrow** key on your keyboard.



Make a Melody

Play a series of notes.



Make a Melody

scratch.mit.edu

GET READY



Choose an instrument, like Saxophone.



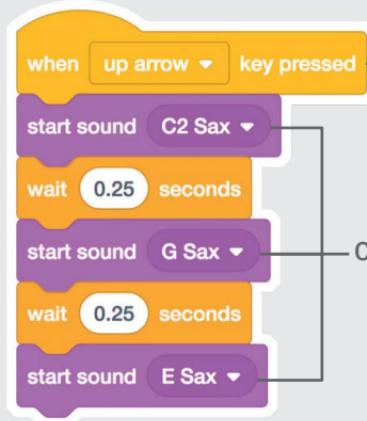
Dance

Music

Sports

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

ADD THIS CODE



Choose **up arrow** (or another key).

Choose different sounds.

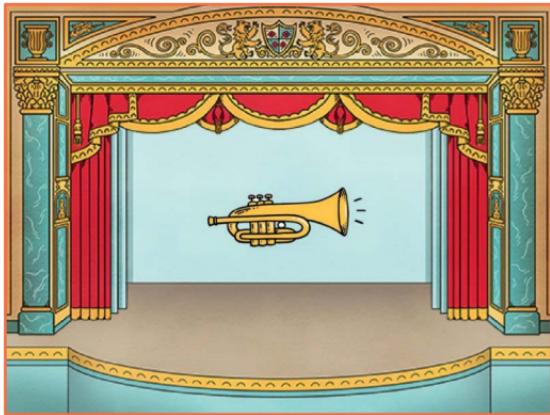
TRY IT



Press the **up arrow** key.

Play a Chord

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



Play a Chord

scratch.mit.edu

GET READY



Choose an instrument, like Trumpet.



Trumpet

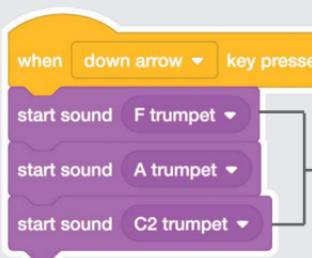
Dance

Music

Sports

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

ADD THIS CODE



Choose down arrow (or another key).

Choose different sounds.

TRY IT



Press the **down arrow** key.

TIP

Use to play sounds play at the same time.

Use to play sounds one after another.

Surprise Song

Play a random sound from a list of sounds.



Surprise Song

scratch.mit.edu

GET READY



Choose an instrument,
like Guitar.



Sounds

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



ADD THIS CODE

Code

Click the Code tab.



Choose right arrow.

Insert a pick random block.

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



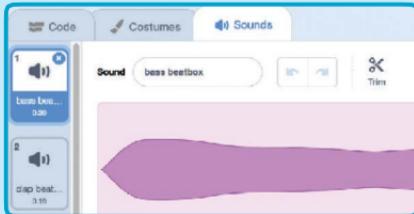
Choose the Microphone sprite.



Microphone



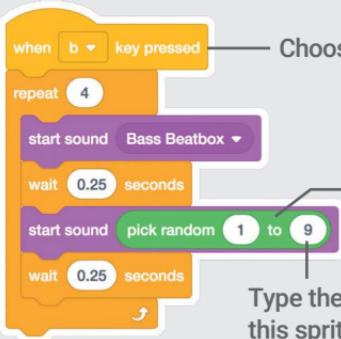
Click the **Sounds** tab to see how many sounds are in your instrument.



ADD THIS CODE



Click the **Code** tab.



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

Insert a **pick random 1 to 9** block.

Type the number of sounds in this sprite.

TRY IT



Press the **B** key to start.

Record Sounds

Make your own sounds to play.



Record Sounds

scratch.mit.edu

GET READY



Choose a backdrop.



Beach Malibu



Choose any sprite.

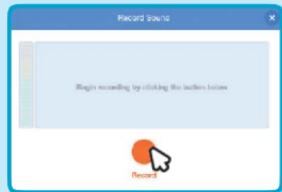


Beachball



Click the **Sounds** tab.

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

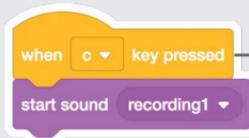


Click the **Record** button to record a short sound.

ADD THIS CODE



Click the **Code** tab.



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

TRY IT



Press the **C** key to start.

Play a Song

Add a music loop as background music.



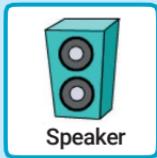
Play a Song

scratch.mit.edu

GET READY



Choose a sprite,
like Speaker.



Click the Sounds tab.



Choose a sound from
the Loops category,
like Drum Jam.

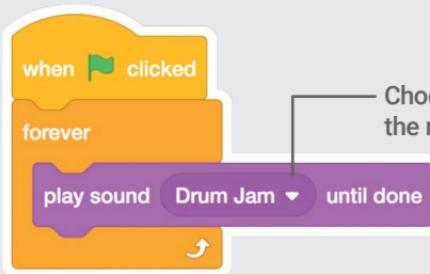


To see just the music loops, click the Loops category at the top of the Sounds Library.

ADD THIS CODE



Click the Code tab.



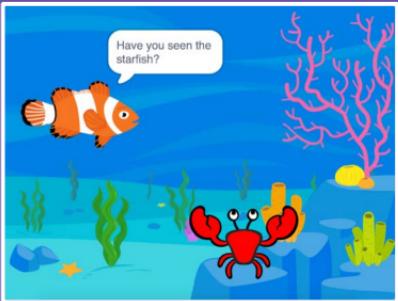
Choose your sound from
the menu.

TRY IT

Click the green flag to start.



Create a Story Cards



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

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.



Start a Story

scratch.mit.edu



GET READY



Choose a backdrop.

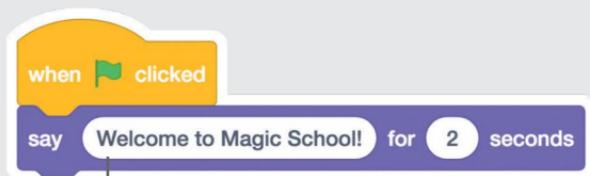


Choose a character.



Wizard

ADD THIS CODE



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.



Start a Conversation

scratch.mit.edu

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.



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

Type what you want
each character to say.



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

TIP



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



Switch Backdrops

Change from one backdrop to another.



Switch Backdrops

scratch.mit.edu



GET READY



Choose a character.



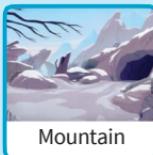
Elf



Choose two backdrops.



Witch House



Mountain

ADD THIS CODE



```
when green flag clicked
switch backdrop to [Witch House v]
wait (4) seconds
switch backdrop to [Mountain v]
```

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.



Click a Character

scratch.mit.edu



GET READY



Choose a backdrop.



Mountain



Choose a character.



Unicorn

ADD THIS CODE



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.



Add Your Voice

scratch.mit.edu



GET READY



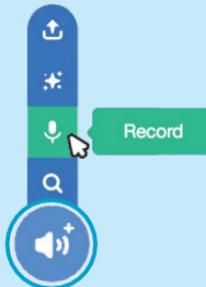
Choose a sprite.



Princess

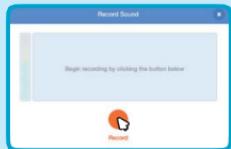


Click the **Sounds** tab.



Choose **Record** from the pop-up menu.

Click **Record**.



When you're done, click **Save**.

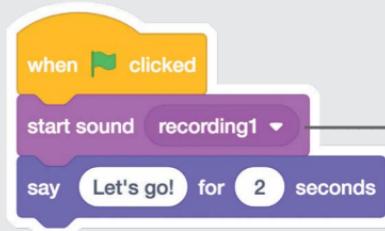
ADD THIS CODE



Princess



Click the **Code** tab.



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.



Glide to a Spot

scratch.mit.edu

GET READY



Choose a backdrop.



Mountain

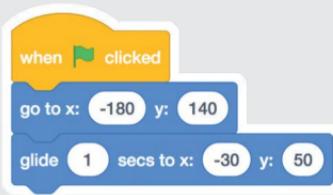


Choose a character.



Owl

ADD THIS CODE

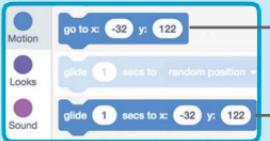


TRY IT

Click the green flag to start.



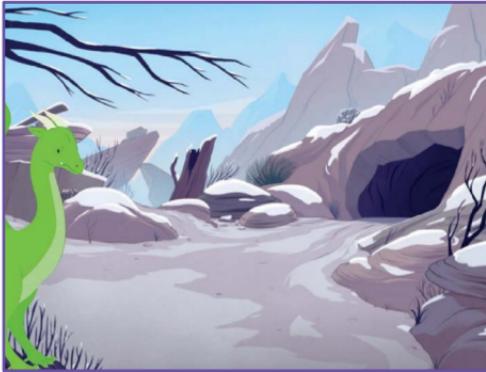
TIP



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.



Walk onto the Stage

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GET READY



Choose a backdrop.



Mountain

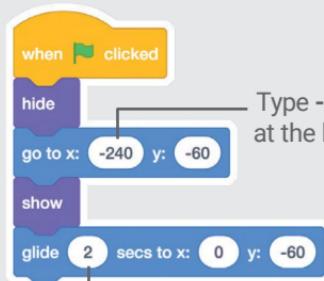


Choose a character.



Dragon

ADD THIS CODE

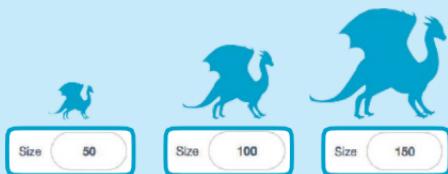
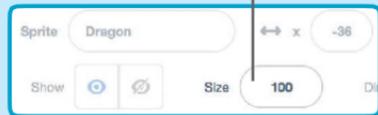


Type **-240** to place your sprite at the left edge of the Stage.

Change this number to glide faster or slower.

TIP

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



Respond to a Character

Coordinate a conversation so that one character talks after another.



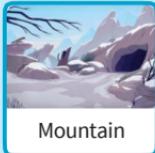
Respond to a Character

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GET READY



Choose a backdrop.



Mountain



Choose two characters.



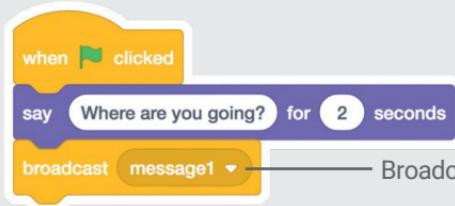
Goblin



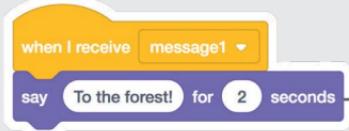
Princess

ADD THIS CODE

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



Broadcast a message.



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

TIP



You can click the menu to add a new message.

Add a Scene

Create multiple scenes with different backdrops and characters.



Add a Scene

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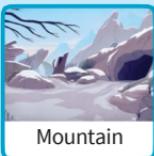
GET READY



Choose two backdrops.



Witch House



Mountain



Choose a character.



Fox

ADD THIS CODE



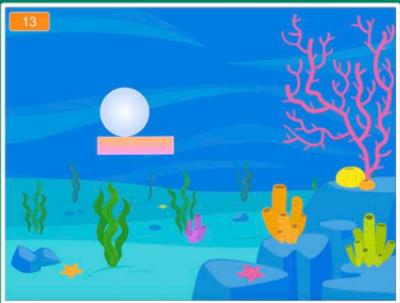
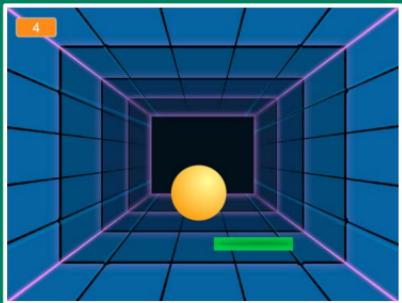
Choose the backdrop name from the menu.

TRY IT

Click the green flag to start.



Pong Game Cards



Make a bouncing ball game and score points to win!



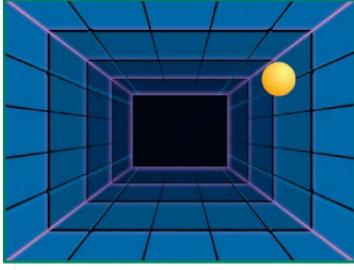
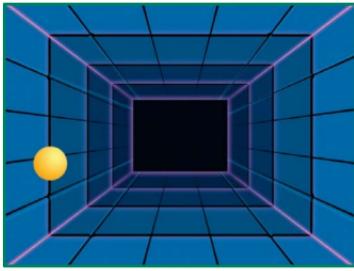
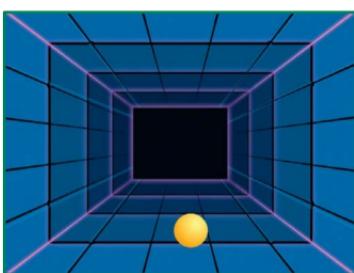
Pong Game Cards

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**

Bounce Around

Make a ball move around the Stage.



Bounce Around

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GET READY



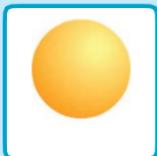
Choose a backdrop.



Neon Tunnel



Choose a ball.



ADD THIS CODE



Ball



Type a larger number to move faster.

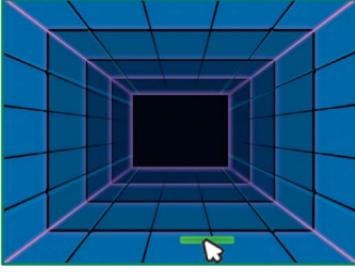
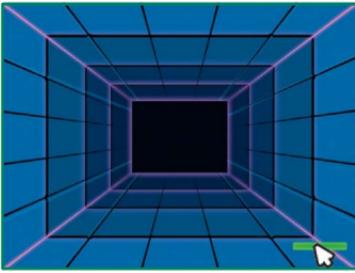
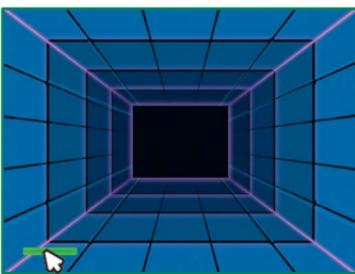
TRY IT

Click the green flag to start.



Move the Paddle

Control a paddle by moving
your mouse pointer.



Move the Paddle

scratch.mit.edu



GET READY



Choose a sprite for hitting the ball, like Paddle.



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

ADD THIS CODE



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



Click the green flag to start.

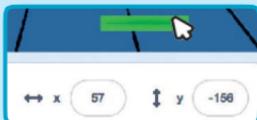


TRY IT

Move your mouse pointer to move the paddle.

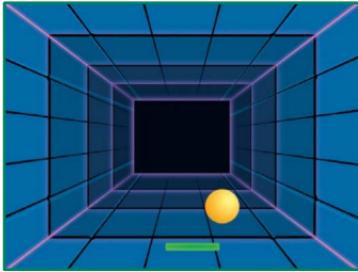
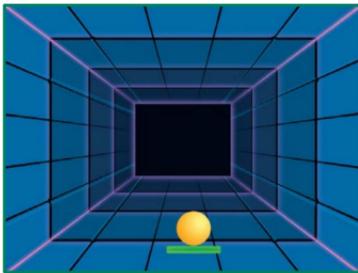
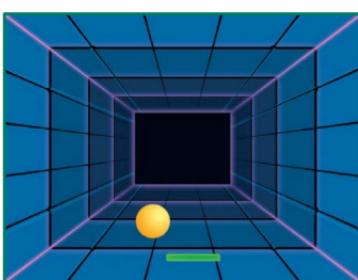
TIP

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



Bounce Off the Paddle

Make the ball bounce off the paddle.



Bounce Off the Paddle

scratch.mit.edu

GET READY

Click to select the Ball sprite.



ADD THIS CODE

Add this new stack of blocks to your Ball sprite.



The image shows a Scratch script attached to the 'Ball' sprite. The script starts with a 'when green flag clicked' hat block, followed by a 'forever' control loop. Inside the loop is an 'if touching Paddle then' control block. This is followed by three orange 'repeat' blocks. The first repeat block contains a 'turn C° pick random 170 to 190 degrees' control block. The second repeat block contains a 'move 15 steps' control block. The third repeat block contains a 'wait 0.5 seconds' control block. A callout box points to the 'if touching Paddle then' block with the text: 'Choose Paddle from the menu.' Another callout box points to the 'pick random 170 to 190' block with the text: 'Insert the pick random block and type in 170 to 190'.

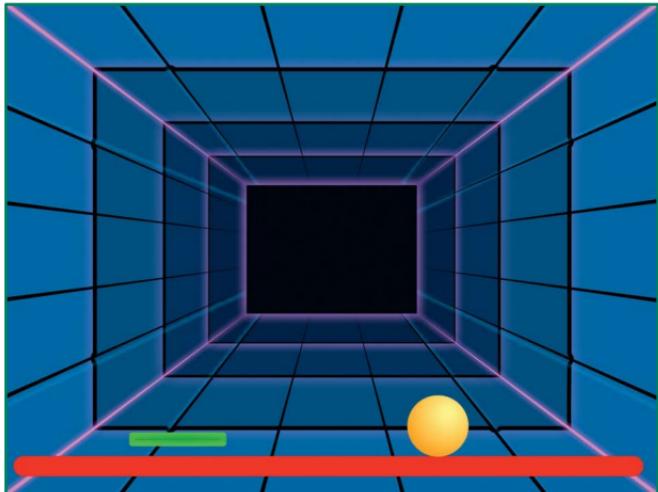
TRY IT

Click the green flag to start.



Game Over

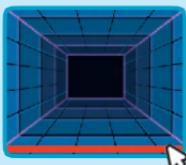
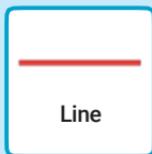
Stop the game if the ball hits the red line.



Game Over

scratch.mit.edu

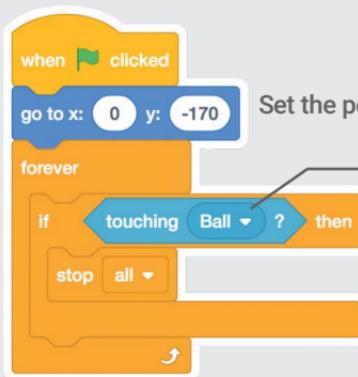
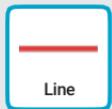
GET READY



Choose the sprite called Line.

Drag the Line sprite to the bottom of the Stage.

ADD THIS CODE



Set the position of the Line.

Choose Ball from the menu.

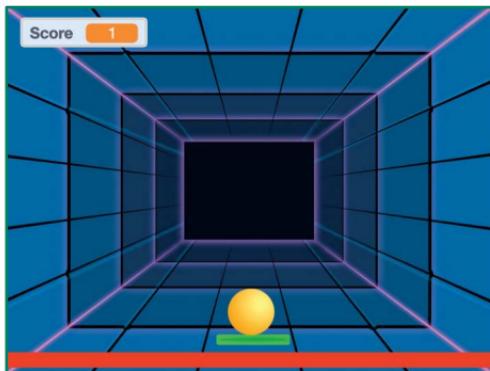
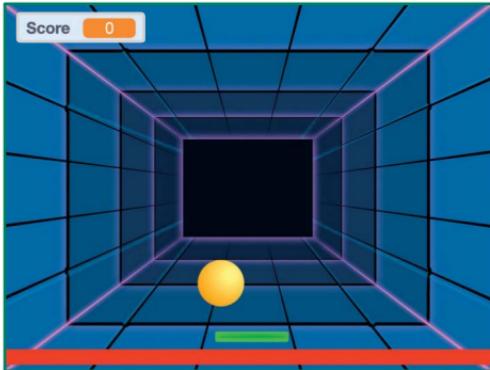
TRY IT

Click the green flag to start.



Score Points

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



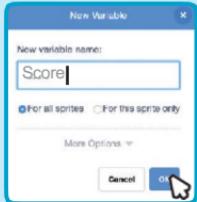
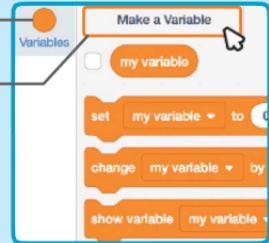
Score Points

scratch.mit.edu

GET READY

Choose Variables.

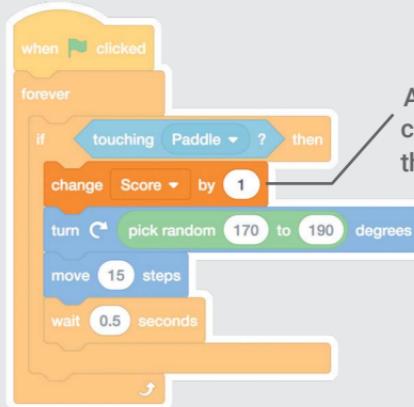
Click the Make a Variable button.



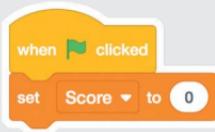
Name this variable **Score** and then click **OK**.

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

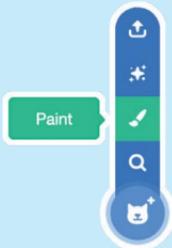
When you score enough points, display a winning message!



Win the Game

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GET READY



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

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

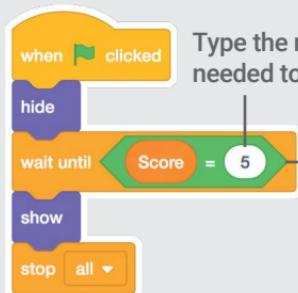


You can change the font color, size, and style.

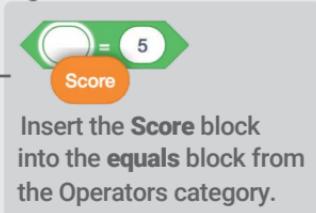
ADD THIS CODE



Click the **Code** tab.



Type the number of points needed to win the game.



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.



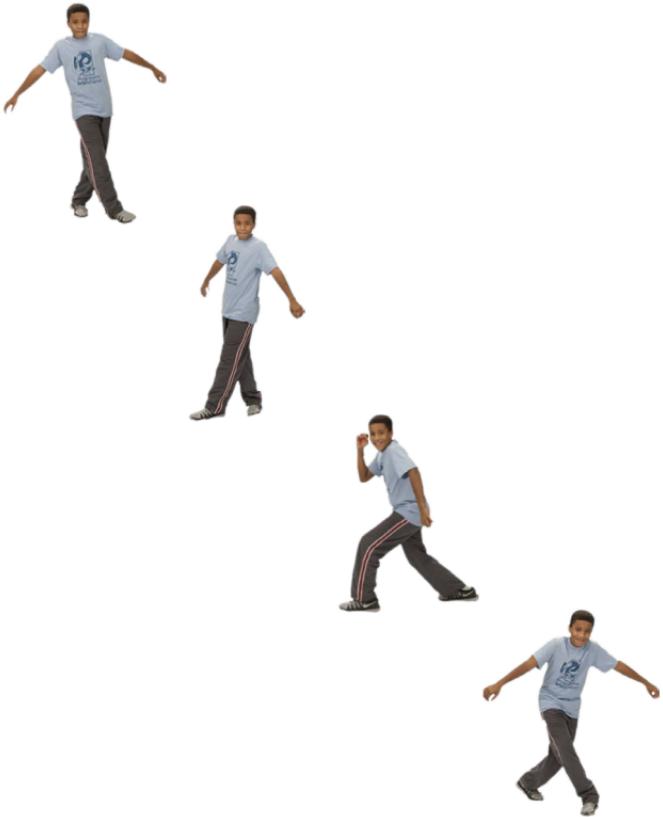
Let's Dance Cards

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.



Let's Dance

1

SCRATCH

Dance Sequence

scratch.mit.edu



GET READY



Choose a dancer.



Ten80 Dance



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

Fantasy

Dance

Music

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

ADD THIS CODE



Click the **Code** tab.



Type how long to wait between dance moves.



Pick different dance moves.

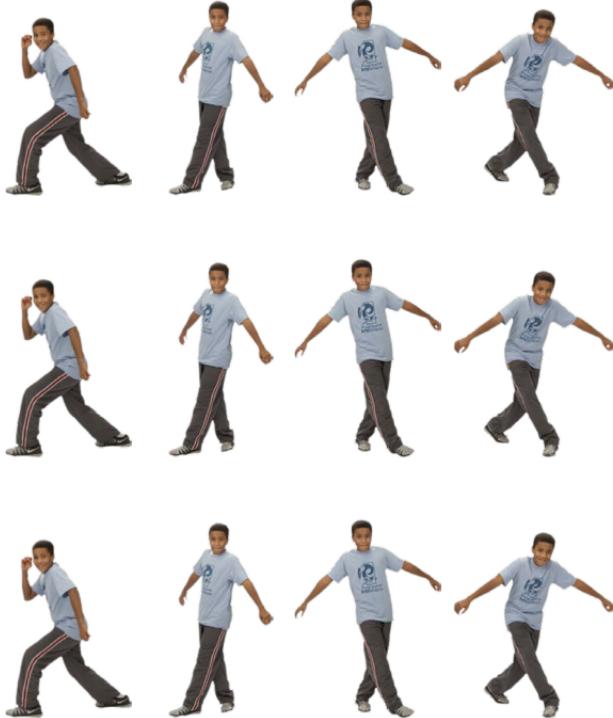
TRY IT

Click the green flag to start.



Dance Loop

Repeat a series of dance steps.



Let's Dance

2

SCRATCH

Dance Loop

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GET READY



Go to the
Sprite Library.



Click the **Dance** category.



Choose a dancer.

ADD THIS CODE



Add a **repeat**
block around your
dance sequence.



Choose a dance pose.

Type how many times
you want to repeat the
dance.

TRY IT

Click the green flag to start.



Play Music

Play and loop a song.



Let's Dance

3

SCRATCH

Play Music

scratch.mit.edu



GET READY



Choose a backdrop.



Concert



Click the **Sounds** tab.



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

ADD THIS CODE



Click the **Code** tab.



Type how many times you want the song to repeat.

TIP

Make sure to use (not) 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

scratch.mit.edu



GET READY



Choose two dancers from the Dance category.



Anina Dance



Champ99

ADD THIS CODE



```
when green flag clicked
  switch costume to [anina top L step v]
  wait [0.3] seconds
  switch costume to [anina top R step v]
  wait [0.3] seconds
  switch costume to [anina stance v]
  broadcast [message1 v]
```

Broadcast a message.



```
when I receive [message1 v]
  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

scratch.mit.edu



GET READY



Go to the
Sprite Library.

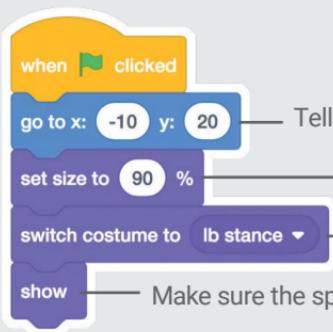


Click the **Dance** category.



Choose a dancer.

ADD THIS CODE



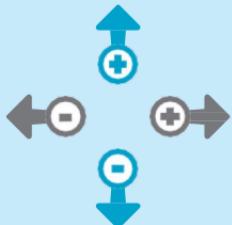
Tell your sprite where to start.

Set the sprite's size.

Choose a starting costume.

Make sure the sprite is showing.

TIP



Use 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.



Let's Dance

6

SCRATCH

Shadow Effect

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GET READY



Go to the
Sprite Library.



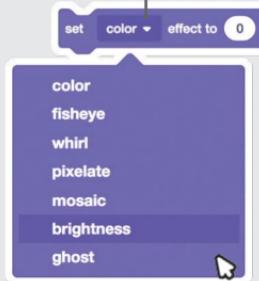
Click the **Dance** category.



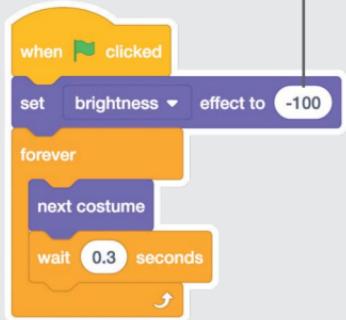
Choose a dancer.

ADD THIS CODE

Choose **brightness**
from the menu.



Set the brightness to **-100** to
make the sprite completely dark.



TRY IT

Click the green flag to start.



Click the stop sign to stop.

Interactive Dance

Press keys to switch dance moves.



Interactive Dance

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GET READY



Go to the
Sprite Library.



Click the **Dance** category



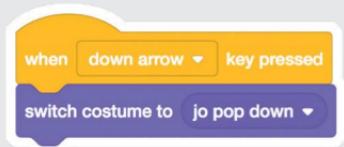
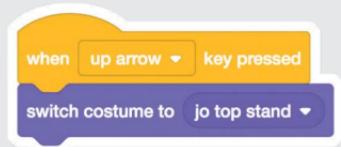
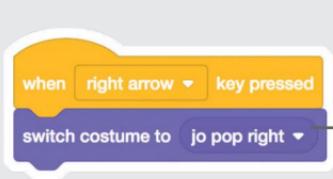
Choose a dancer.

ADD THIS CODE

Choose a different key to press
for each dance move.



Pick a dance move from the menu.



TRY IT



Press the arrow keys on your keyboard.

Color Effect



Make the backdrop change colors.



Color Effect

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GET READY

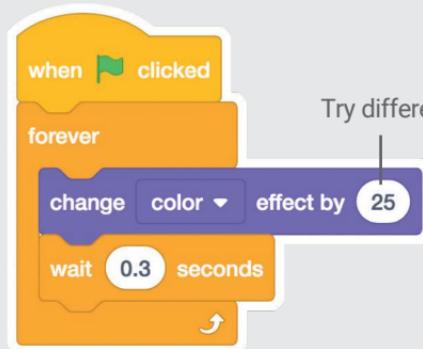


Choose a backdrop.



Spotlight

ADD THIS CODE



Try different numbers.

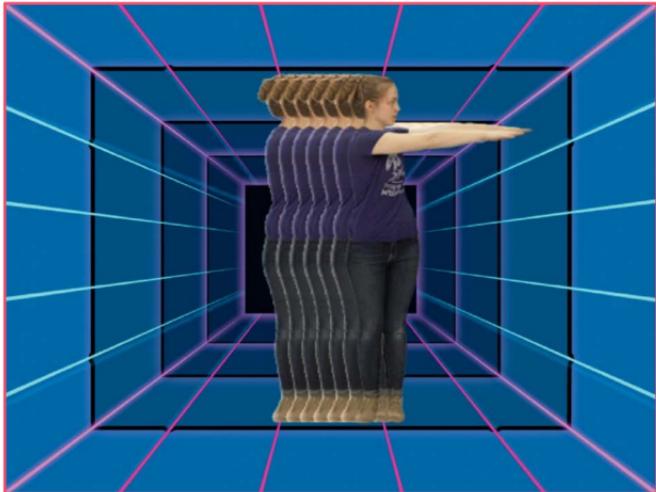
TRY IT

Click the green flag to start.



Leave a Trail

Stamp a trail as your dancer moves.



Leave a Trail

scratch.mit.edu



GET READY

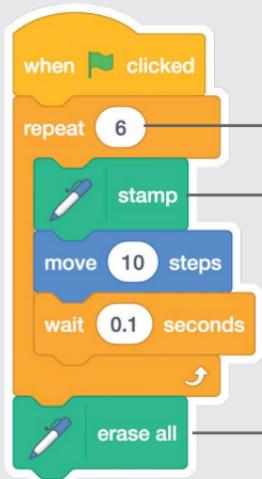


Choose a dancer from the Dance category.



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

ADD THIS CODE



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



Make a character jump over moving obstacles.

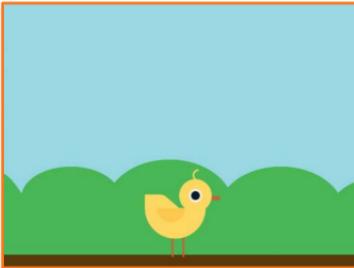
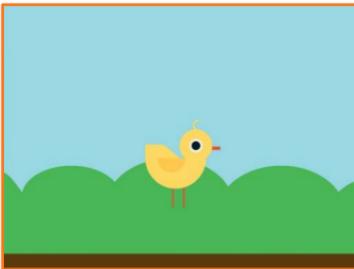
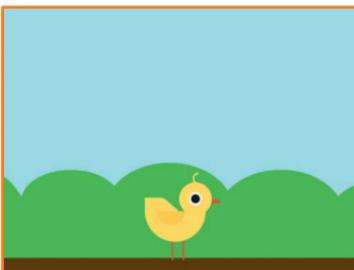
Jumping Game Cards

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.



Jump

scratch.mit.edu

GET READY



Choose a backdrop.



Choose a character,
like Chick.



ADD THIS CODE



Type a minus sign
to go back down.

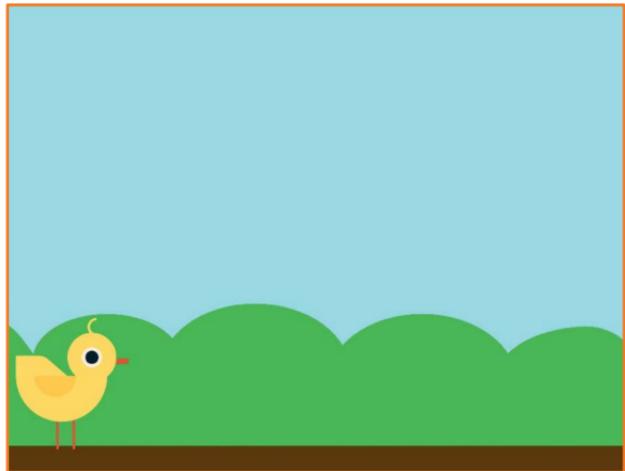
TRY IT



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

Go to Start

Set the starting point for your sprite.



Go to Start

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GET READY



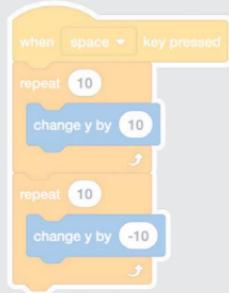
Drag your character to where you want it.



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

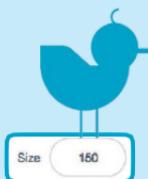
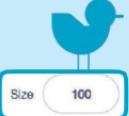
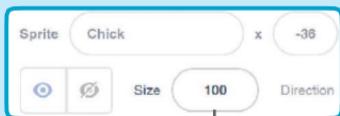
Now when you drag out a **go to** block, it will set to your character's new position.

ADD THIS CODE



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

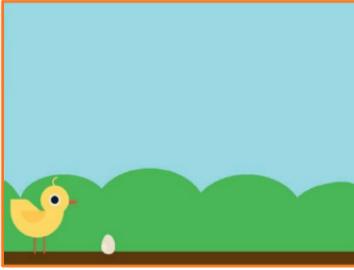
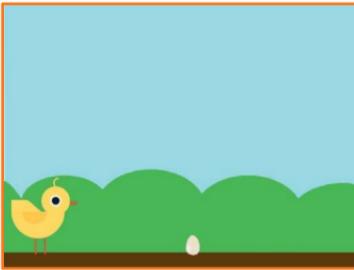
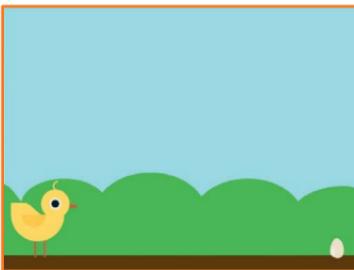
TIP



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

Moving Obstacle

Make an obstacle move across the Stage.



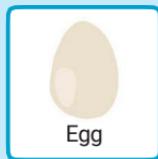
Moving Obstacle

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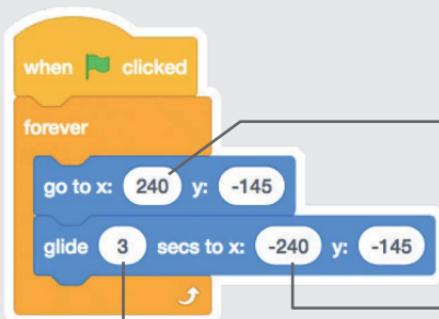
GET READY



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



ADD THIS CODE



Start at the right edge of the Stage.

Type a smaller number to go faster.

Glide to the left edge of the Stage.

TRY IT

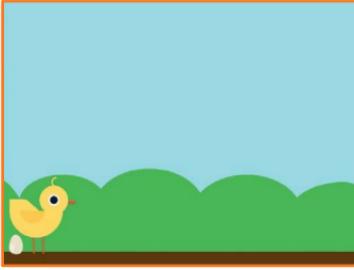
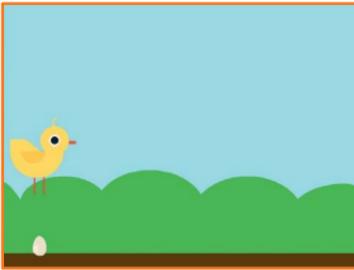
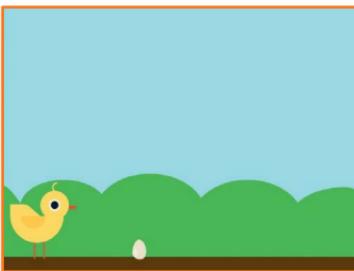
Click the green flag to start.



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

Add a Sound

Play a sound when your sprite jumps.

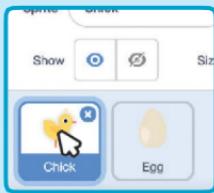


Add a Sound

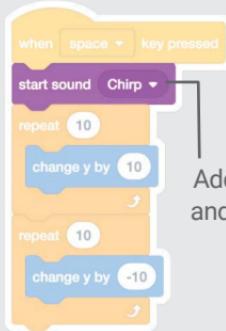
scratch.mit.edu

GET READY

Click to select the Chick sprite.



ADD THIS CODE



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

TRY IT

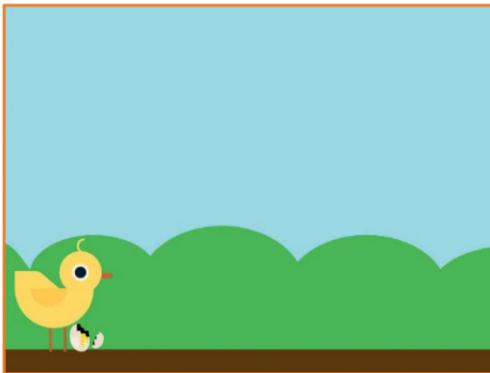
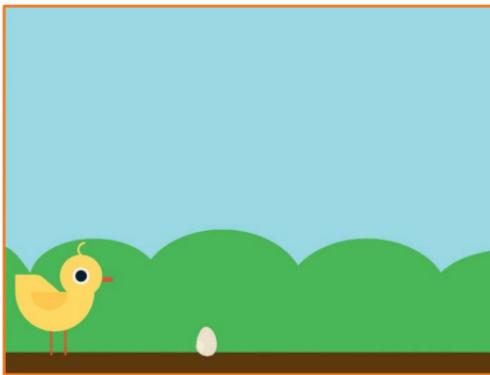
Click the green flag to start.



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

Stop the Game

Stop the game if your sprite touches the egg.

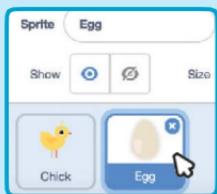


Stop the Game

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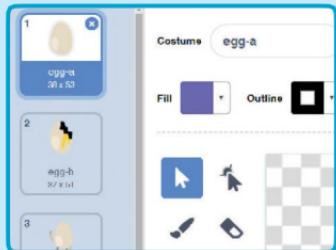
GET READY

Click to select the Egg sprite.



Costumes

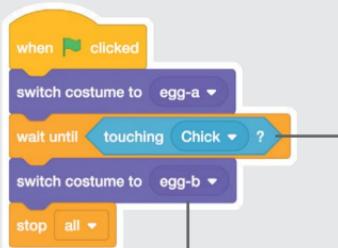
Click the **Costumes** tab to see the Egg sprite's costumes.



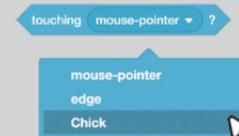
ADD THIS CODE

Code

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



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



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

TRY IT

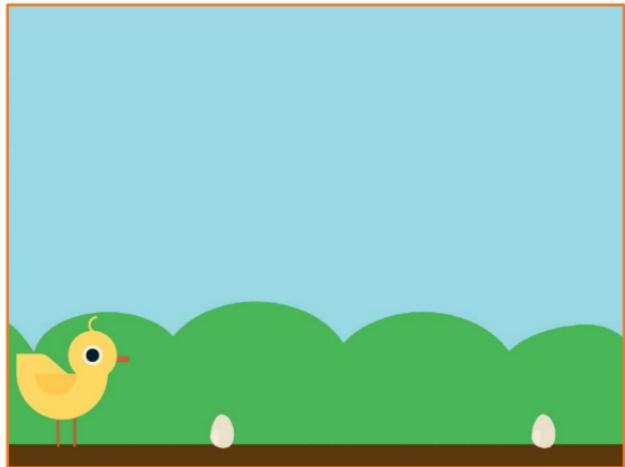
Click the green flag to start.



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

Add More Obstacles

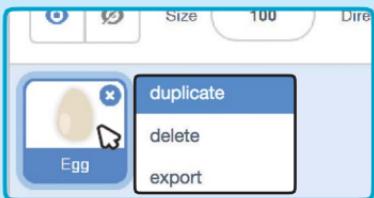
Make the game harder by adding more obstacles.



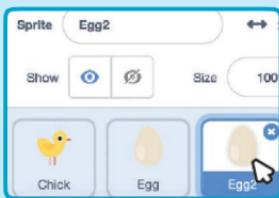
Add More Obstacles

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GET READY

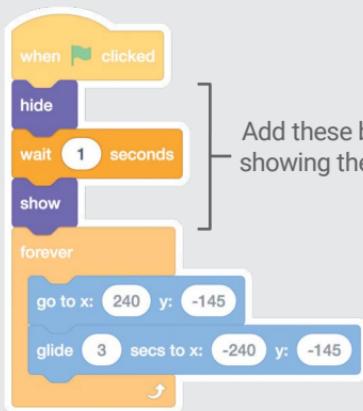


To duplicate the **Egg** sprite, right-click (Mac: control-click) on the thumbnail, and then choose **duplicate**.



Click to select **Egg2**.

ADD THIS CODE



Add these blocks to wait before showing the second egg.

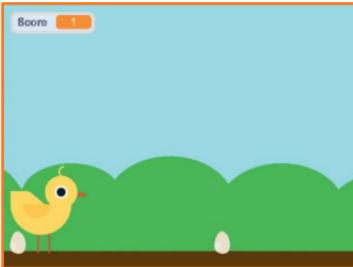
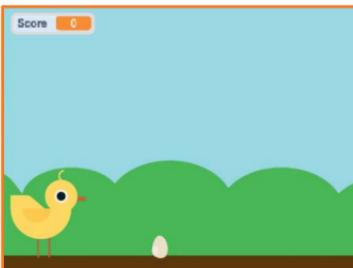
TRY IT

Click the green flag to start.



Score

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



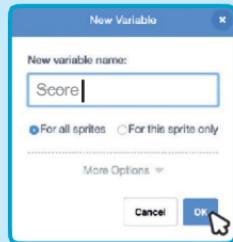
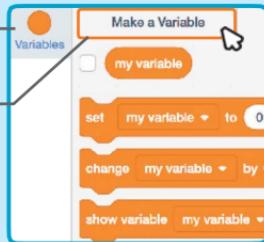
Score

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GET READY

Choose **Variables**.

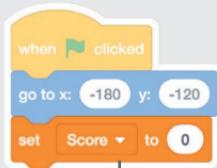
Click the **Make a Variable** button.



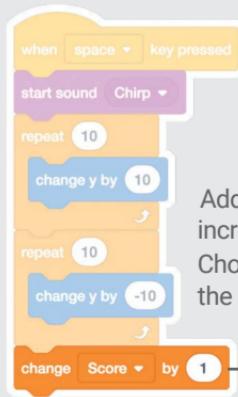
Name this variable **Score** and then click **OK**.

ADD THIS CODE

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



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.

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SCRATCH

Set of 7 cards



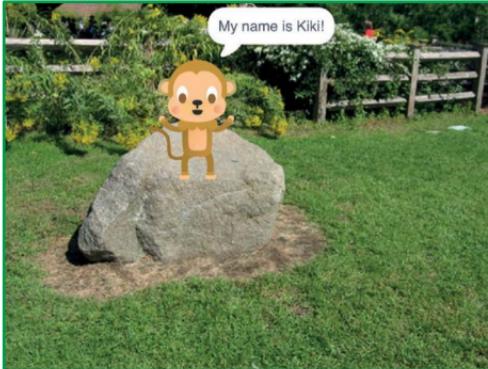
Virtual Pet Cards

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.



Introduce Your Pet

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GET READY



Choose a backdrop,
like Garden Rock.



Garden



Choose a sprite to be
your pet, like Monkey.



Monkey

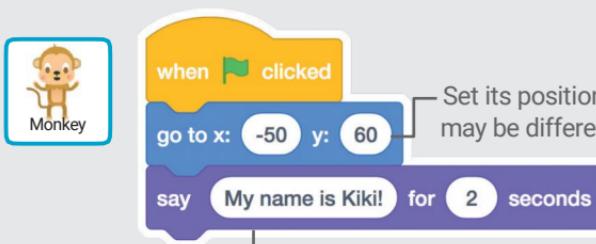
Pick a sprite with more
than one costume.



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.



Type what you want your pet to say.

TRY IT

Click the green flag to start.



Animate Your Pet

Bring your pet to life.



Animate Your Pet

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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.



Choose a costume.

Choose a different costume.

TRY IT

Click your pet.



Feed Your Pet

Click the food to feed your pet.



Feed Your Pet

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GET READY



Click the **Sounds** tab.



Choose a sound from the Sounds Library, like Chomp.



Choose a food sprite, like Bananas.

ADD THIS CODE



Click the **code** tab.

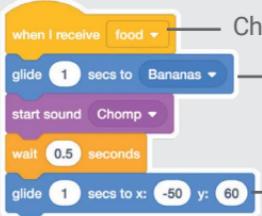


Select **New message** and name it **food**.



Broadcast the **food** message.

Select your pet.



Choose **food** from the menu.

Choose **Bananas** from the menu.

Glide to the starting position.

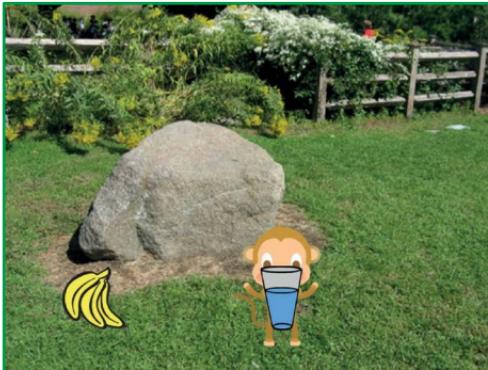
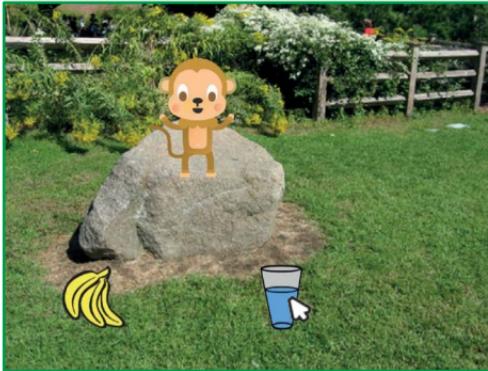
TRY IT

Click the food.



Give Your Pet a Drink

Give your pet some water to drink.



Give Your Pet a Drink

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GET READY



Choose a drink sprite, like **Glass**.



ADD THIS CODE



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



```
when I receive [drink v]
  glide [1 secs to] [Glass Water v]
  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.

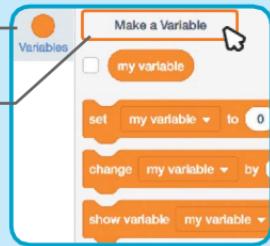


What Will Your Pet Say?

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Choose Variables.

Click the Make a Variable button.

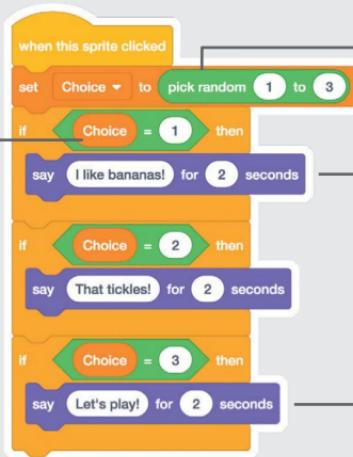


Name this variable **Choice** and then click **OK**.

ADD THIS CODE



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



Insert the **pick random** block.

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

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GET READY



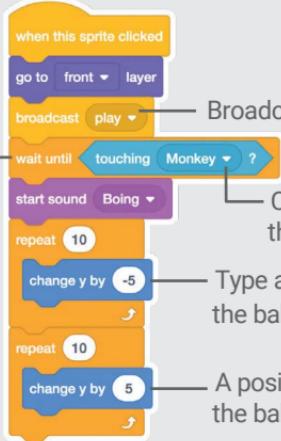
Choose a sprite,
like Ball.



ADD THIS CODE



Insert the touching block
into the **wait until** block.

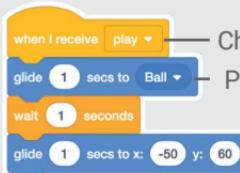


Broadcast a new message.

Choose **Monkey** from
the menu.

Type a minus sign to make
the ball move down.

A positive number makes
the ball move up.



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.



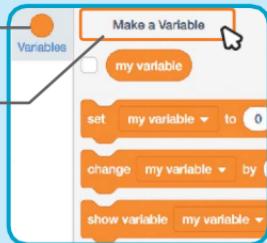
How Hungry?

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GET READY

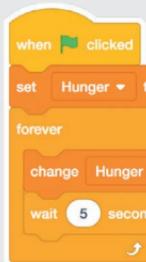
Choose Variables.

Click the Make a Variable button.



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

ADD THIS CODE



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

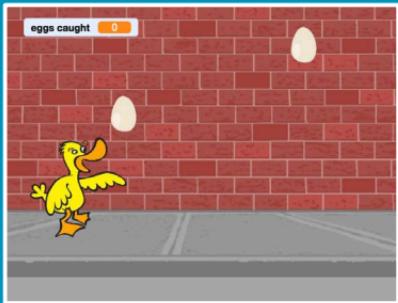
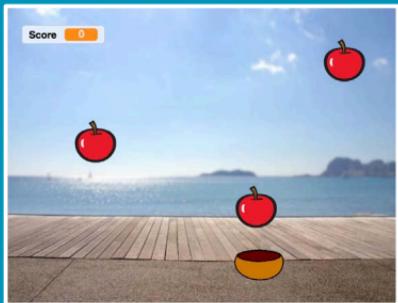
Click the green flag to start.



Then click the food.



Catch Game Cards



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



Catch Game Cards

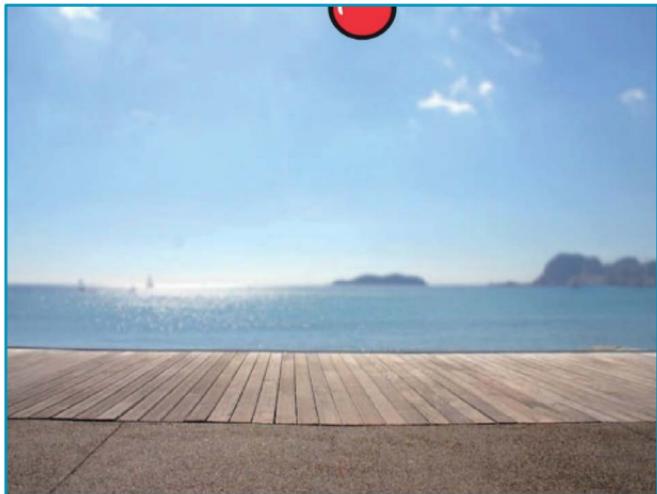
Use these cards in this order:

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.



Go to the Top

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GET READY



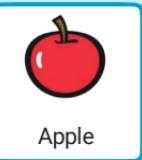
Choose a backdrop,
like **Boardwalk**.



Boardwalk



Choose a sprite,
like **Apple**.



Apple

ADD THIS CODE



Apple



Type **180** to go to the
top of the stage.

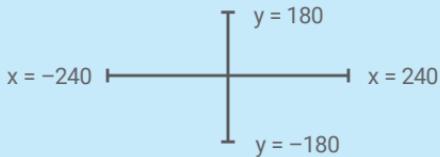
TRY IT

Click the green flag to start.



TIP

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



Fall Down



Make your sprite fall down.



Fall Down

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GET READY



Click to select the **Apple** sprite.

ADD THIS CODE

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



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



Type a minus sign to fall down.

Check if near the bottom of the Stage.

Go back to the top of the Stage.

TRY IT

Click the green flag to start.



Click the stop sign to stop.

TIP

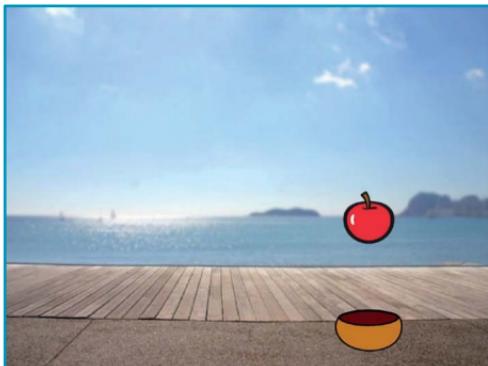
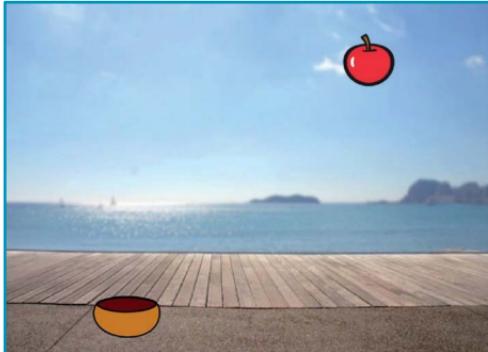
Use



to move up or down.

Move the Catcher

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



Move the Catcher

scratch.mit.edu



GET READY

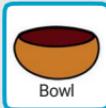


Choose a catcher,
like **Bowl**.



Drag the bowl
to the bottom
of the Stage.

ADD THIS CODE



```
when green flag clicked
forever
  if key right arrow pressed? then
    change x by 10
  end
  if key left arrow pressed? then
    change x by -10
  end
```

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

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

TRY IT

Click the green flag
to start.

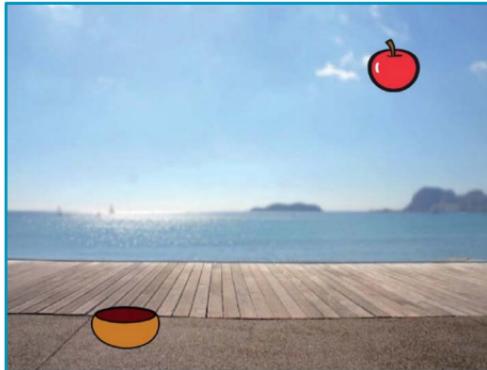


Press the arrow keys
to move the catcher.

Catch It!



Catch the falling sprite.



▷)



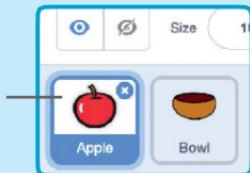
Catch It!

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GET READY

Click to select
the Apple.



ADD THIS CODE



Apple



Choose Bowl from the menu.

Choose a sound.

TIP



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



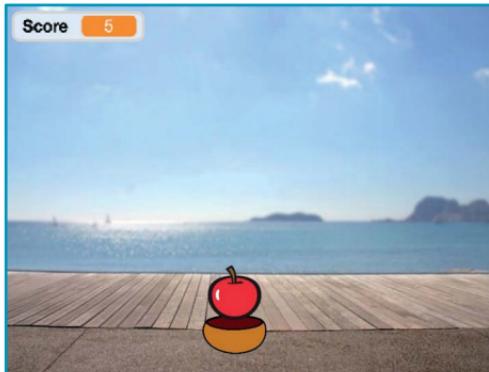
Then choose a sound
from the Sounds Library.



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

Keep Score

Add a point each time you catch the falling sprite.



Keep Score

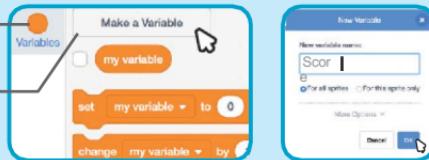
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GET READY

Choose **Variables**.

Click the **Make a Variable** button.



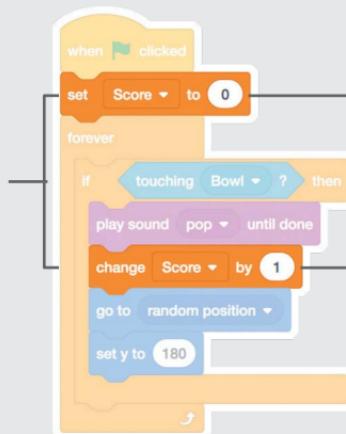
Name this variable **Score** and then click **OK**.

ADD THIS CODE

Add two new blocks to your code:



Choose **Score** from the menu.



Add this block to reset the score.

Add this block to increase the score.

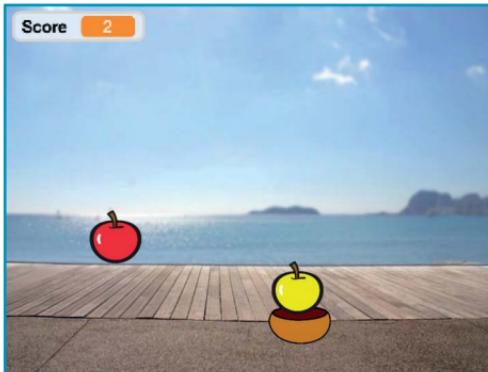
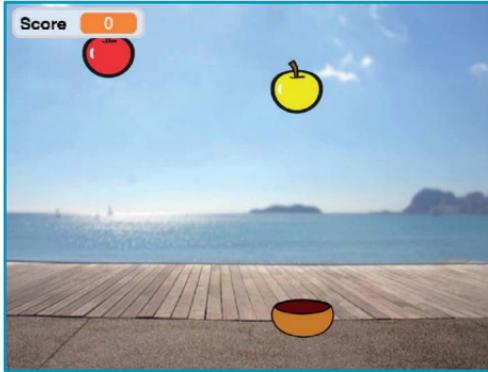
TRY IT



Click the green flag to start.
Then, catch apples to score points!

Bonus Points

Get extra points when you catch a golden sprite.



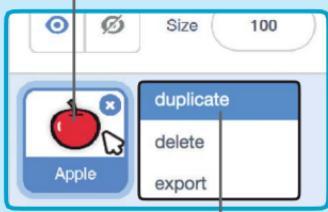
Bonus Points

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GET READY

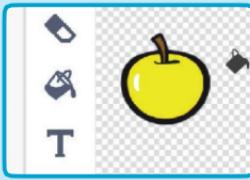
To duplicate your sprite,
right-click (Mac: control+click).



Choose **duplicate**.



Click the **Costumes** tab.

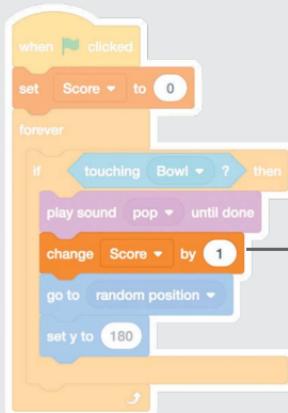


You can use the paint tools to make
your bonus sprite look different.

ADD THIS CODE



Click the **Code** tab.



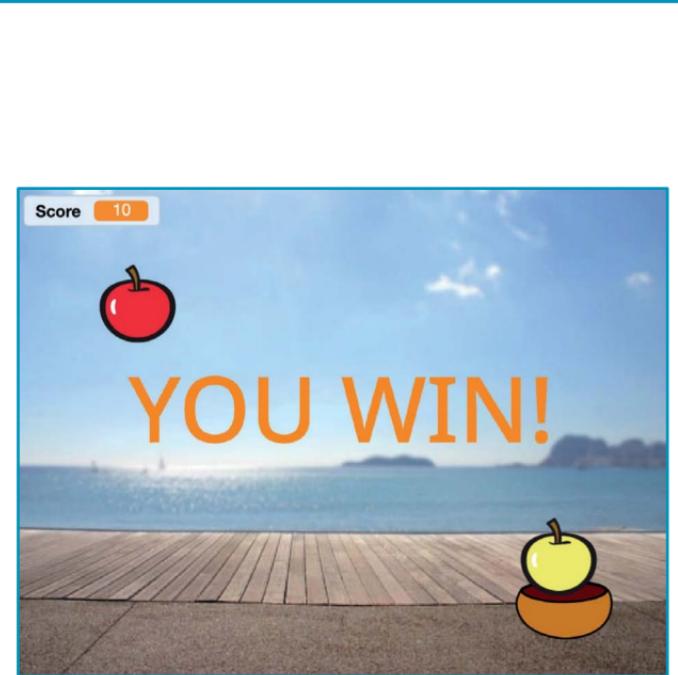
Type how many points you get
for catching a bonus sprite.

TRY IT

Catch the bonus sprite to increase your score!

You Win!

When you score enough points, display a winning message!



You Win!

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GET READY



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

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

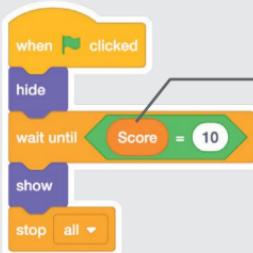


You can change the font color, size, and style.

ADD THIS CODE



Click the **Code** tab.



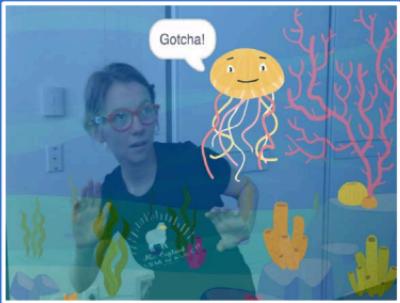
Insert the **Score** block from the Variables category.

Click the green flag to start.



Play until you score enough points to win!

Video Sensing Cards



Interact with projects using video sensing.



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.



Pet the Cat

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GET READY

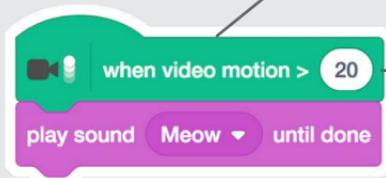


Click the **Extensions** button
(at the bottom left of the screen).



Choose **Video Sensing**
to add the video blocks.

ADD THIS CODE



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

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.



Animate

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GET READY



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



Video Sensing
Canvas motion with the camera.



Choose a sprite to animate.



Dragon

Pick a sprite with more than one costume.

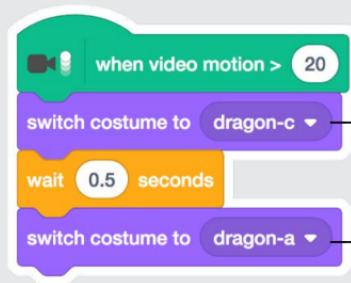


Scroll over sprites in the Sprite Library to see their different costumes.

ADD THIS CODE



Dragon



Choose one costume.

Choose a different costume.

TRY IT

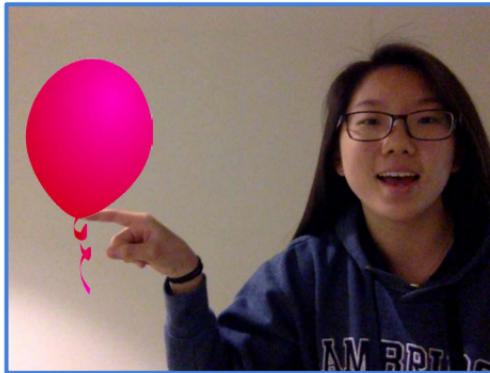
Move around to animate your sprite.



Pop a Balloon



Use your finger to pop a balloon.



Pop a Balloon

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GET READY

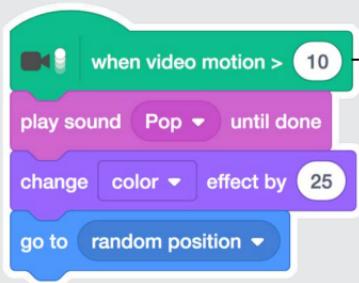


Click the Extensions button,
then choose Video Sensing.



Choose a sprite, like **Balloon1**.

ADD THIS CODE



Type a larger number to
make it harder to pop.

TRY IT

Use your finger to pop the balloon.



Play the Drums



Interact with sprites that play sounds.



Play the Drums

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GET READY



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



Choose two sprites,
like **Drum** and **Drum-cymbal**.

ADD THIS CODE

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



```
when video motion > 10
set size to 100 %
change size by 20
start sound [High Tom v]
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 v]
start sound [Crash Cymbal v]
wait 0.1 seconds
switch costume to [drum-cymbal-b v]
```

Choose a different costume.

TRY IT

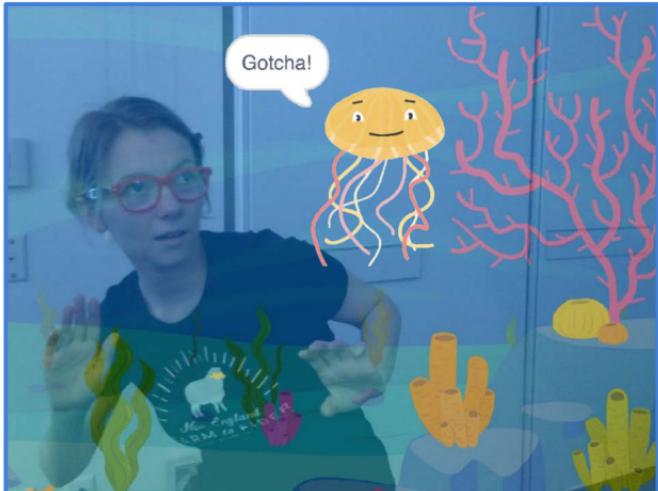
Use your hands to play the drums!



Keep Away Game



Move around to avoid a sprite.



Keep Away Game

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GET READY



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



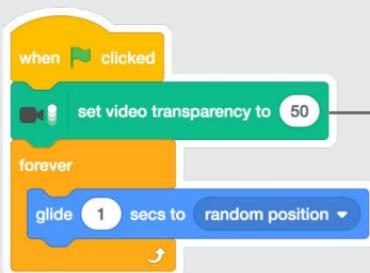
Choose a backdrop,
like **Ocean**.



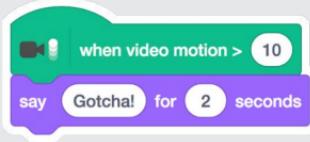
Choose a sprite,
like **Jellyfish**.



ADD THIS CODE



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



TRY IT

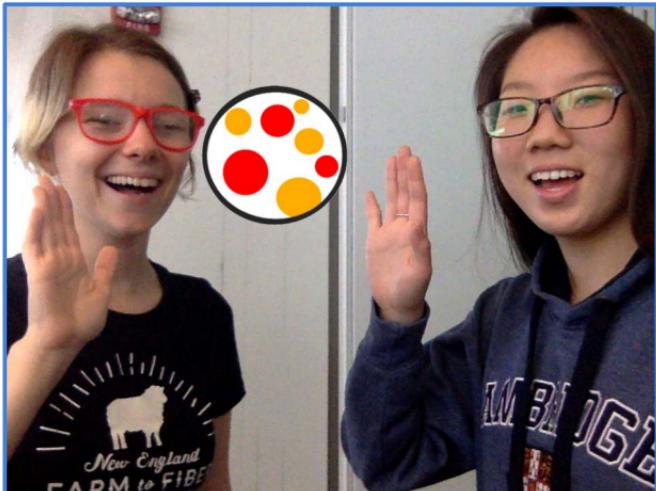
Move around to avoid the jellyfish.





Play Ball

Use your body to move a sprite across the screen.



Play Ball

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GET READY

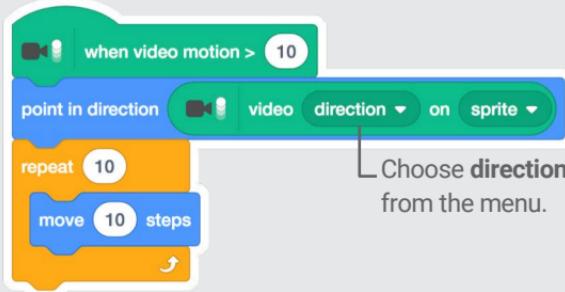
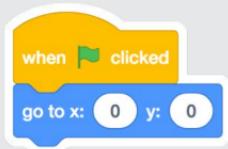


Click the **Extensions** button,
then choose **Video Sensing**.



Choose a sprite, like **Beachball**.

ADD THIS CODE



Choose **direction** from the menu.

TRY IT

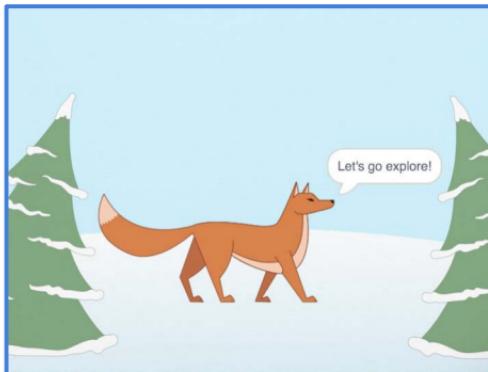


Use your hands to push the beach ball around the screen.
Try it with a friend!

Start an Adventure!



Interact with a story by
moving your hands.



Start an Adventure!

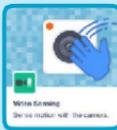
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GET READY



Click the **Extensions** button.



Choose **Video Sensing**.



Choose a backdrop.



Winter



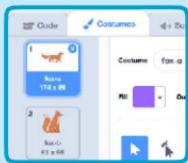
Choose a sprite.



Fox



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



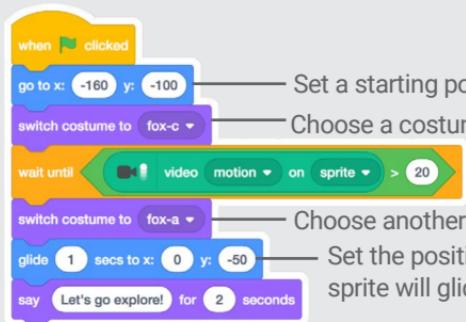
ADD THIS CODE



Click the **Code** tab.



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



Click the green flag.



TRY IT

Then wave to wake up the fox.

