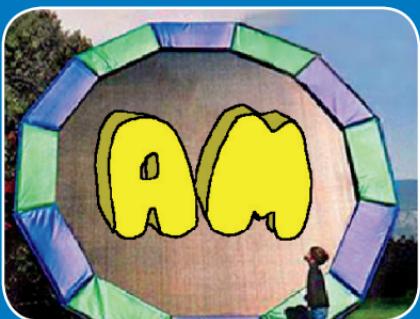


Animate a Name Cards



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

Animate a Name

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.



Color Clicker

scratch.mit.edu



GET READY



Choose a letter from the Sprite Library.



Choose a backdrop.

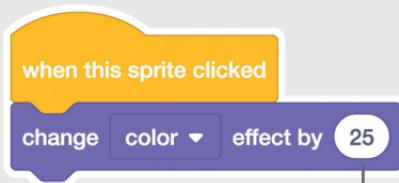


Boardwalk



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.



Spin

scratch.mit.edu



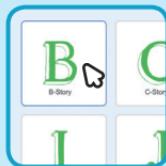
GET READY



Go to the
Sprite Library.

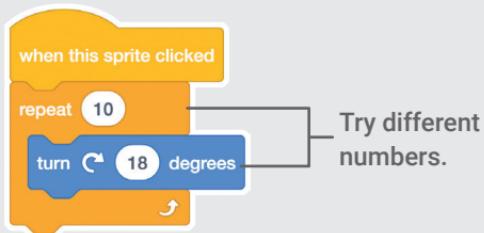


Click the Letters
category.



Choose a letter
sprite.

ADD THIS CODE



TRY IT

Click your letter.



TIP

Click this block to reset the sprite's direction.



Play a Sound

Click a letter to play a sound.



Play a Sound

scratch.mit.edu



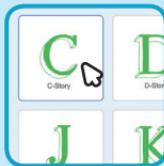
GET READY



Go to the
Sprite Library.



Click the Letters
category.



Choose a letter sprite.



Choose a back-



Click the Sounds

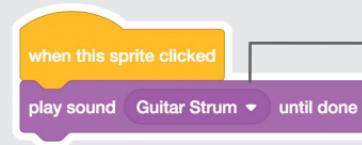


Choose a sound.

ADD THIS CODE



Click the Code tab.



when this sprite clicked

play sound Guitar Strum until done

Choose a sound
from the menu.

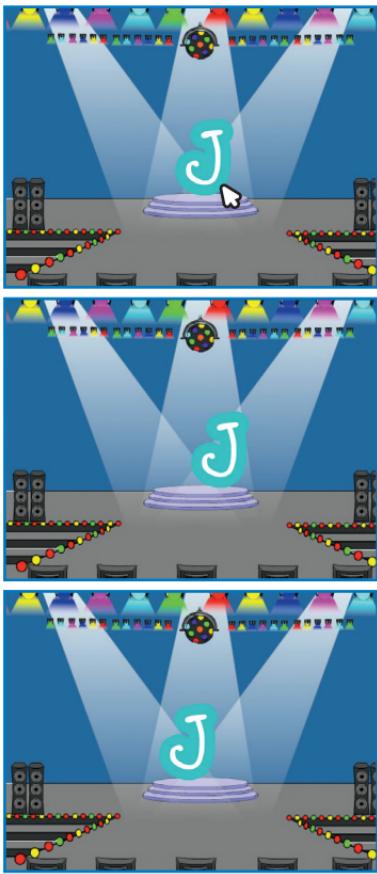
TRY IT

Click your letter.



Dancing Letter

Make a letter move to the beat.





GET READY



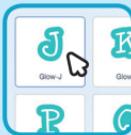
Choose a backdrop.



Stage



Choose a letter from the Sprite Library.

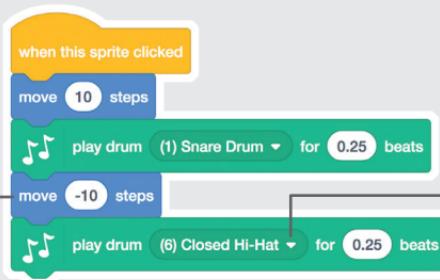


Click the Extensions button (at the bottom left).



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.



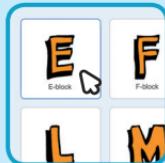
GET READY



Go to the
Sprite Library.

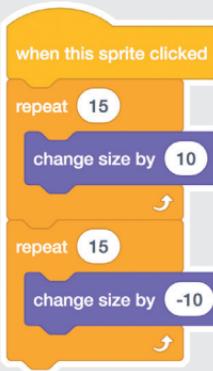


Click the Letters
category.



Choose a letter sprite.

ADD THIS CODE



Type a minus sign
to get smaller.

TRY IT



Click your letter.

TIP

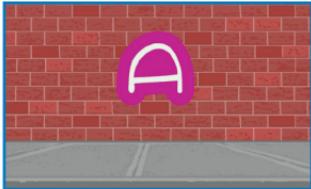
Click this block to reset the size.



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



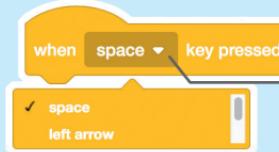
Try different num-

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



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



Bring characters to life
with animation.



Animate a Character Cards

Try these cards in any or-

- 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

scratch.mit.edu

GET READY



Choose a backdrop.



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

```
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.

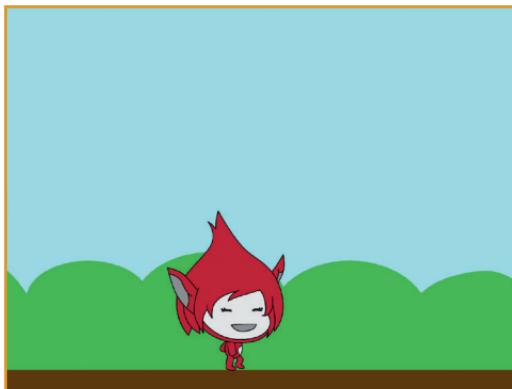
TRY IT



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

Make a Character Jump

Press a key to jump up and down.



Make a Character Jump

scratch.mit.edu

GET READY



Choose a back-



Blue Sky



Choose a character.

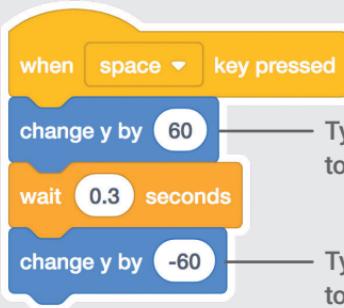


Giga Walking

ADD THIS CODE



Giga



when space key pressed

change y by 60

Type how high to jump.

wait 0.3 seconds

change y by -60

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.



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

scratch.mit.edu

GET READY



Choose a backdrop.



Nebula

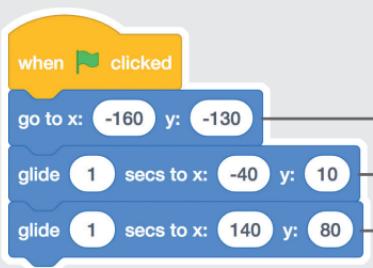


Choose a character.



Rocketship

ADD THIS CODE



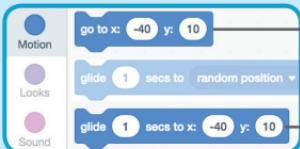
Set the starting point.

Set another point to glide to.

Set the end point.

TRY IT

Click the green flag to start.



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



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

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

Set the starting point.
Set the end point.

```
when green flag clicked
go to x: -170 y: 120
glide (1) secs to x: 150 y: 50
```

Flap the wings

Choose one costume.
Choose another.

```
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
```

TRY IT

Click the green flag to start.



Talking Animation

Make a character talk.



Talking Animation

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GET READY



Choose Penguin 2.



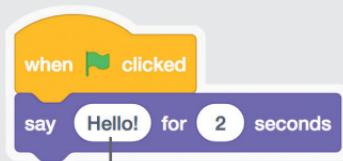
Costumes

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

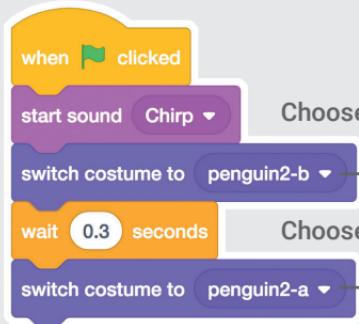
ADD THIS CODE

Code

Click the Code



Type what you want your character to say.



Choose one costume.

Choose another.

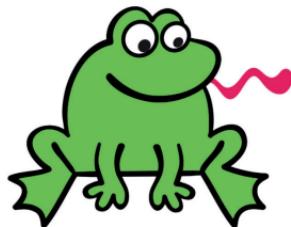
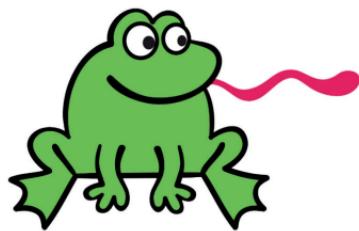
TRY IT

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

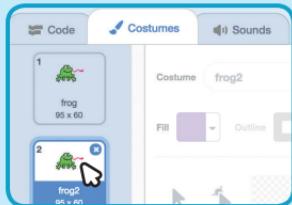


Click the Costumes tab.



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

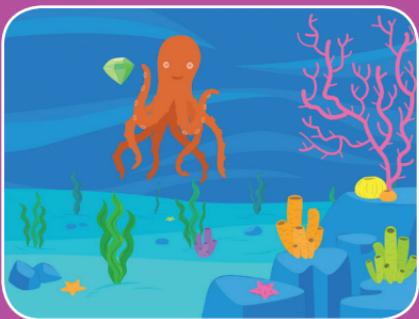
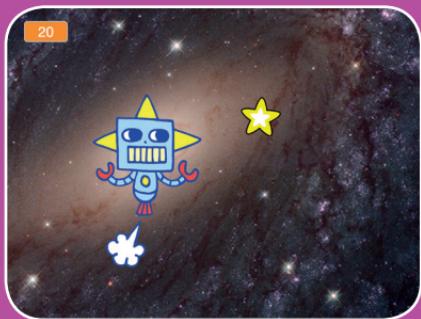
Use the **next costume** block to animate your character.

TRY IT



Click the green flag to start.

Chase Game Cards



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



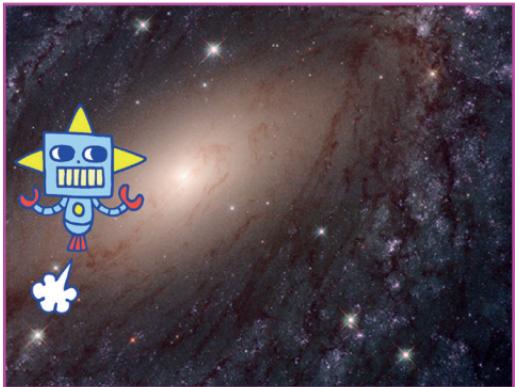
Chase Game Cards

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

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GET READY



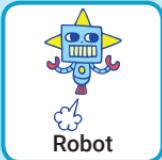
Choose a backdrop.



Galaxy



Choose a character.



Robot

ADD THIS CODE



Choose left arrow.

Type a minus sign to move left.

TRY IT

Press the arrow keys.



TIP

x is the position on the Stage from left to

Type a negative number to move to the left.

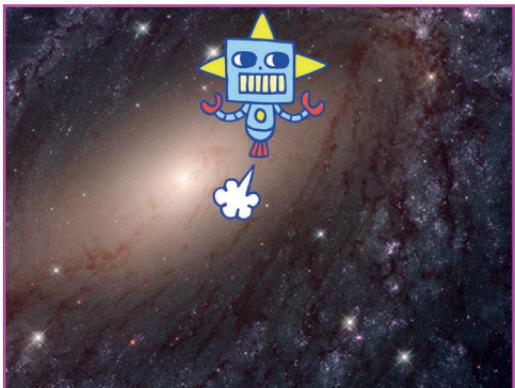


Type a positive number to move to the right.



Move Up and Down

Press arrow keys to move up and down.

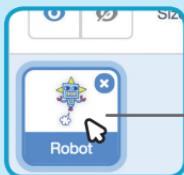


Move Up and Down

scratch.mit.edu



GET READY



Click your character to select it.

ADD THIS CODE



A Scratch script consisting of two blocks: "when up arrow key pressed" and "change y by 10".

Choose up arrow.

A Scratch script consisting of two blocks: "when down arrow key pressed" and "change y by -10".

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.



A Scratch script consisting of one block: "change y by 10".

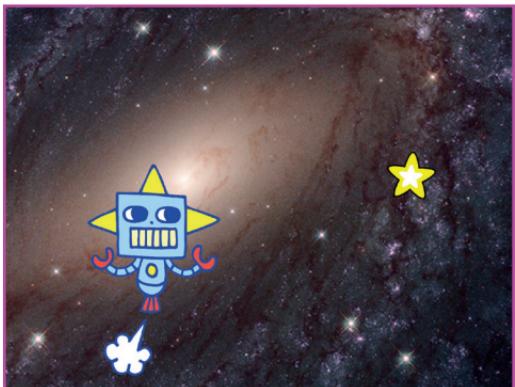
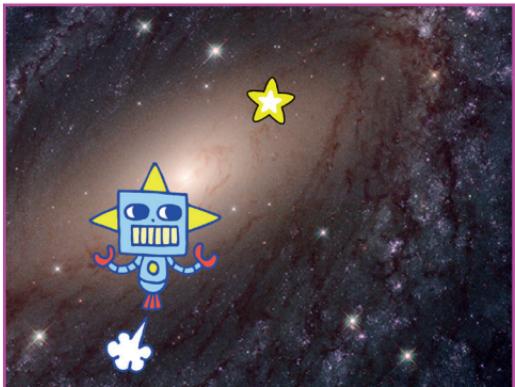
Type a positive number to move

A Scratch script consisting of one block: "change y by -10".

Type a negative number to move

Chase a Star

Add a sprite to chase.



Chase a Star

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GET READY

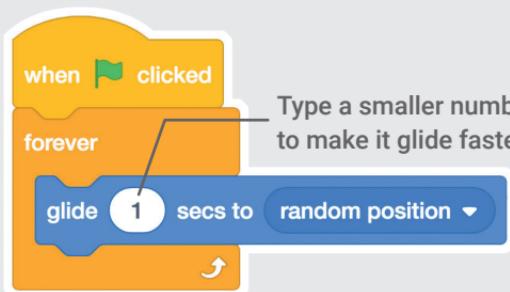


Choose a sprite to chase, like Star.



Star

ADD THIS CODE



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

TRY IT

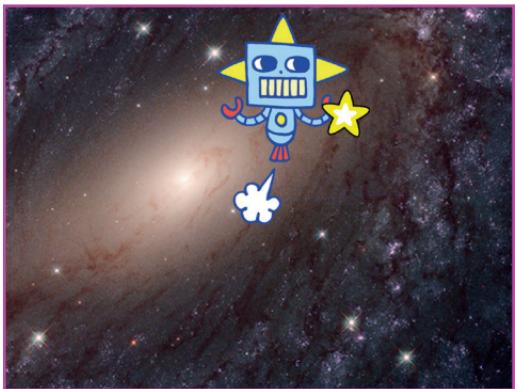
Click the green flag to start.



Click the stop sign to stop.

Play a Sound

Play a sound when your character touches the star.

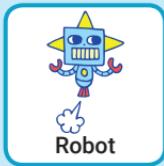


Play a Sound

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GET READY



Click to select
the Robot sprite.



Click the Sounds



Choose a sound from the
Sounds Library, like Collect.

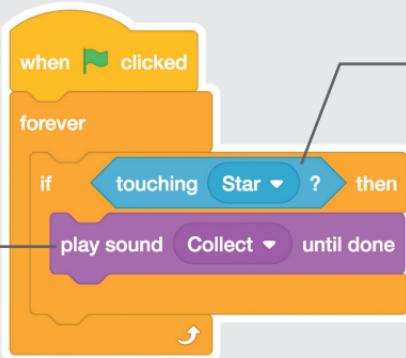
ADD THIS CODE



Click the Code tab and add this code.



Choose your
sound from
the menu.



Insert the touching block into the if then block.



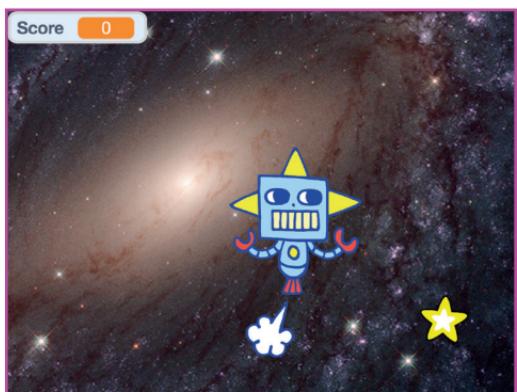
TRY IT

Click the green flag to start.



Add a Score

Score points when you touch the star.



Add a Score

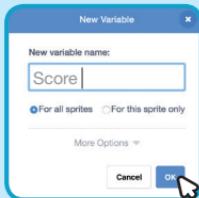
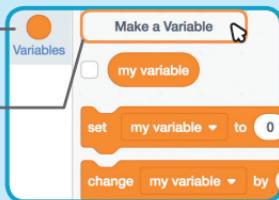
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GET READY

Choose Variables.

Click the Make a Variable button.

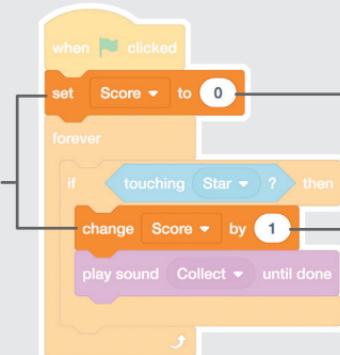


Name this variable Score and then click OK.

ADD THIS CODE



Select Score from the menu.



Add this block to reset the score.

Add this block to increase the score.

TIP



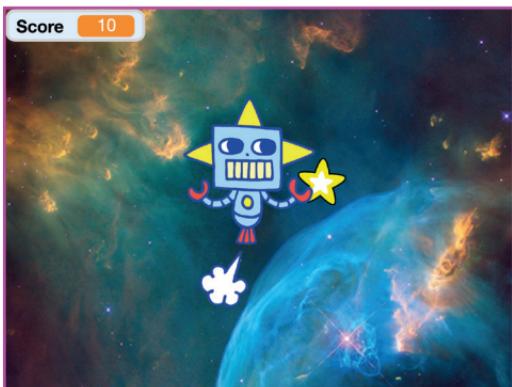
Use the **set variable** block to reset the score to zero.



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

Level Up!

Go to the next level.



Level Up!

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GET READY

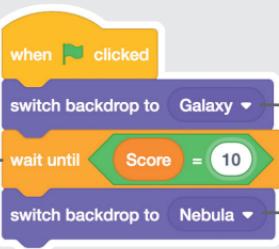


Choose a second backdrop, like Nebula.



Select the Robot

ADD THIS CODE



Choose your first backdrop.



Choose the backdrop to switch to.

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



Choose a sound.

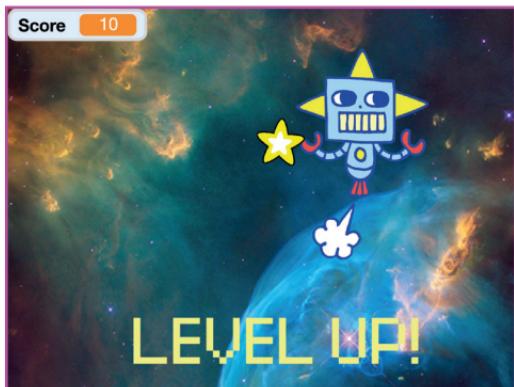
TRY IT

Click the green flag to start the game!



Victory Message

Show a message when you go to
the next level.

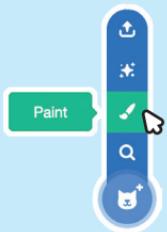


Victory Message

scratch.mit.edu



GET READY



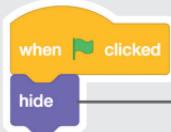
Click the **Paint** icon
to make a new sprite.

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

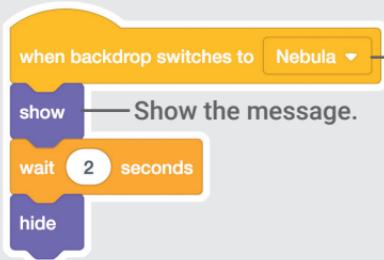


You can change the font
color, size, and style.

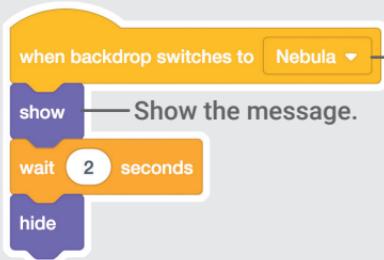
ADD THIS CODE



Hide the message at the beginning.



Choose the backdrop
for the next level.



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.

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.



Theater 2

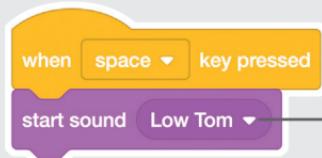


Choose a drum.



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.

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.

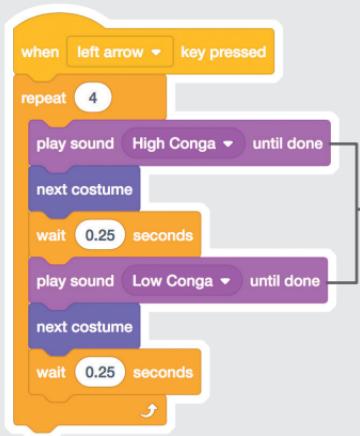
You can use the paint
tools to change colors.



ADD THIS CODE

Code

Click the **Code** tab.



Choose a sound
from the menu.

TRY IT



Press the **left arrow** key.

Make a Melody

Play a series of notes.



Make a Melody

scratch.mit.edu

GET READY



Choose an instrument, like Saxophone.



Saxophone

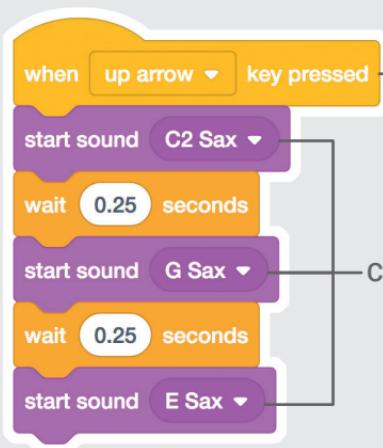
Dance

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.

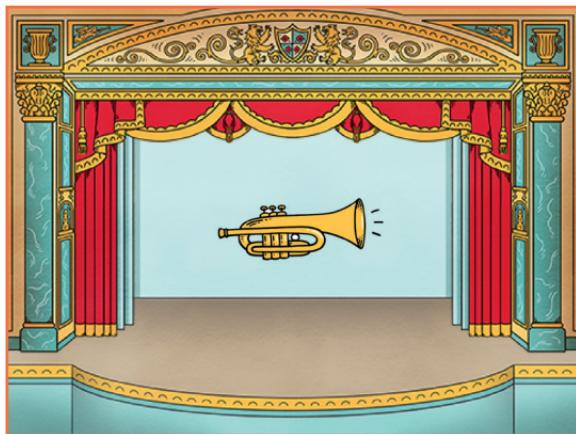
TRY IT



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.



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 make 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



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.



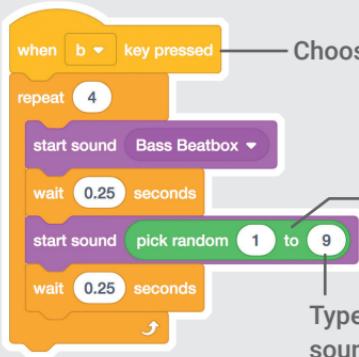
Click the **Sounds** tab to see how many sounds are in your instrument.



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.



Record Sounds

scratch.mit.edu

GET READY



Choose a backdrop.



Beach Malibu



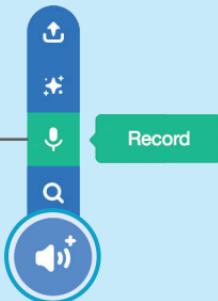
Choose any sprite.



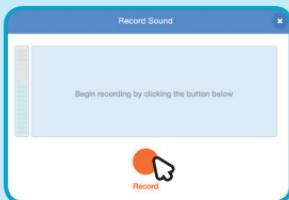
Beachball



Click the **Sounds** tab.



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

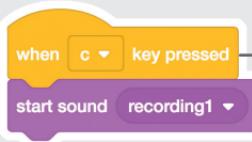


Click the **Record** button to record a short sound.

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.

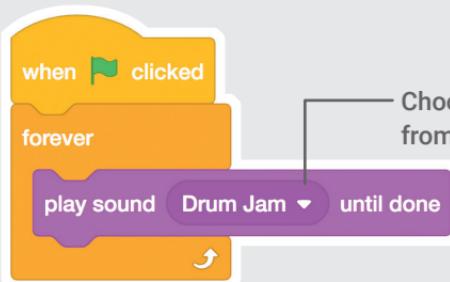


To see just the music loops, click the **Loops** category at the top of the Sounds Library.

ADD THIS CODE



Click the **Code** tab.



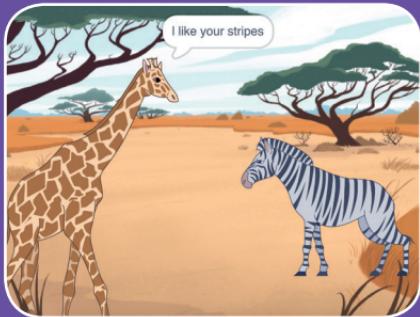
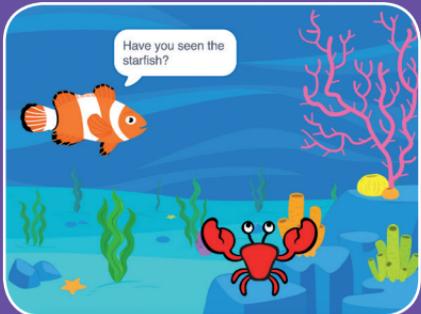
Choose your sound
from the menu.

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

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

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GET READY



Choose a backdrop.



Choose a character.

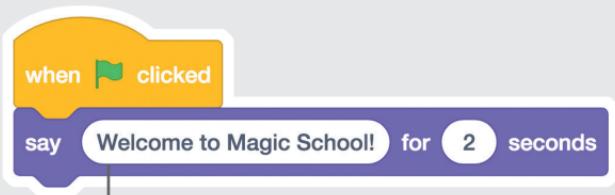


Wizard

ADD THIS CODE



Wizard



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.



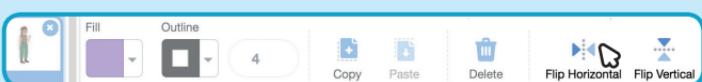
```
when green flag clicked
wait [2] seconds
say [What's its name?] for [2] seconds
```



TIP

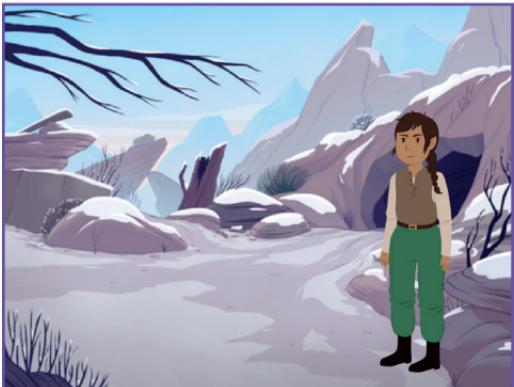


To change the direction a character is facing, click the **Costumes** tab, then click **Flip Horizontal**.



Switch Backdrops

Change from one backdrop to another.



Switch Backdrops

scratch.mit.edu

GET READY



Choose a character.



Elf



Choose two backdrops.



Witch House

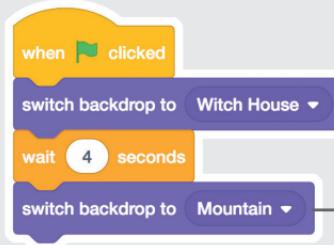


Mountain

ADD THIS CODE



Elf



Choose the backdrop you want to start with.

Choose the second backdrop.

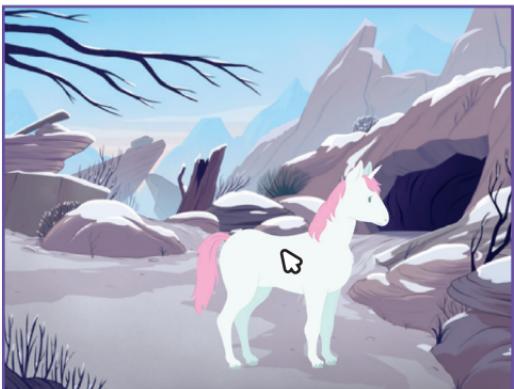
TRY IT

Click the green flag to start.



Click a Character

Make your story interactive.



Click a Character

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GET READY



Choose a backdrop.



Mountain



Choose a character.

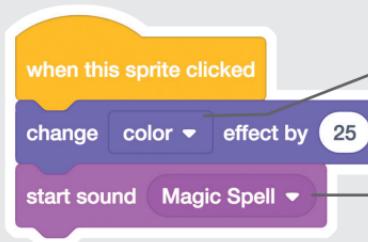


Unicorn

ADD THIS CODE



Unicorn



You can choose different effects.

Select a sound from the menu.

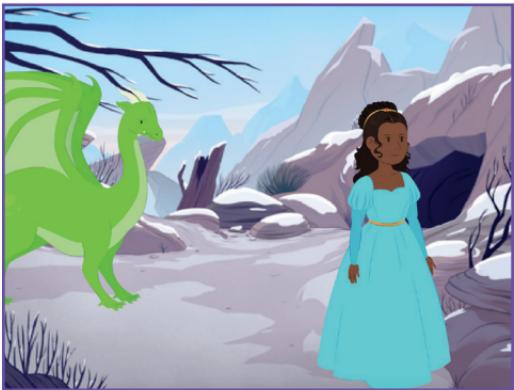
TRY IT

Click your character.



Add Your Voice

Record your voice to make a character talk.



Add Your Voice

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GET READY



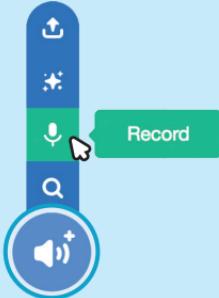
Choose a sprite.



Princess

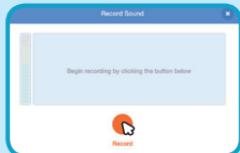


Click the Sounds tab.



Choose Record from the pop-up menu.

Click Record.

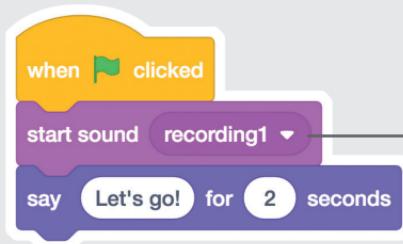


When you're done, click Save.

ADD THIS CODE



Click the Code tab.



Select your recording from the menu.

Click the green flag to start.



Glide to a Spot

Make a character move across the Stage.



Glide to a Spot

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GET READY



Choose a backdrop.



Mountain



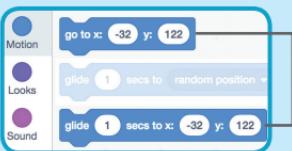
Choose a character.



Owl



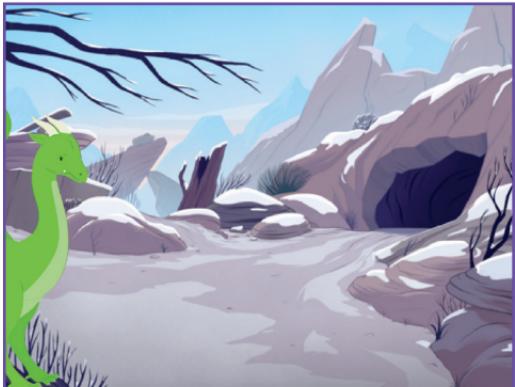
Click the green flag to



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



Have a character enter the scene.



Walk onto the Stage

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GET READY



Choose a backdrop.



Mountain

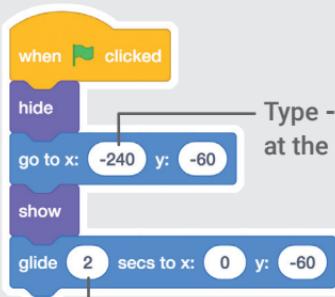


Choose a character.



Dragon

ADD THIS CODE

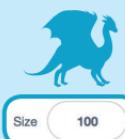
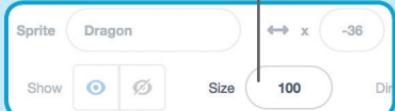


Type **-240** to place your sprite at the left edge of the Stage.

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.



Goblin

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

Broadcast a message.

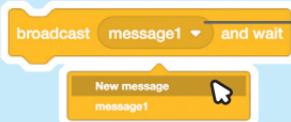


Princess

```
when I receive [message1 v]
  say [To the forest! for 2 seconds]
```

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

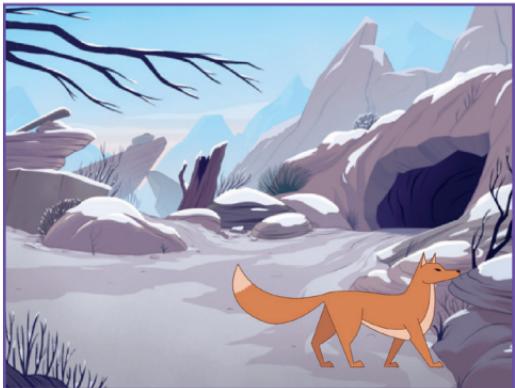
TIP



You can click the drop-down 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

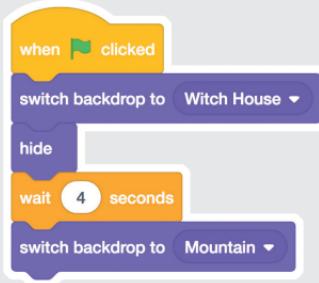


Choose a character.



Fox

ADD THIS CODE



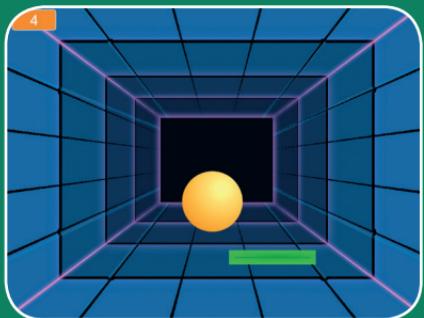
Choose the backdrop name from the menu.

TRY IT

Click the green flag to start.



Pong Game Cards



**Make a bouncing ball game and
score points to win!**



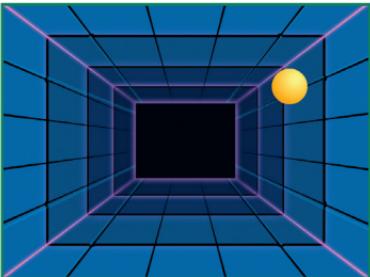
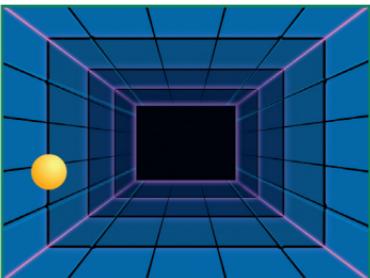
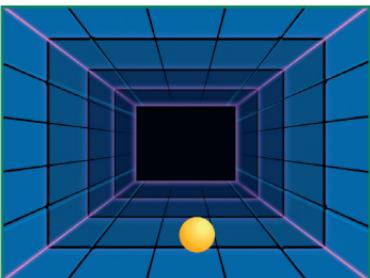
Pong Game Cards

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



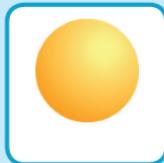
Choose a backdrop.



Neon Tunnel



Choose a ball.



ADD THIS CODE



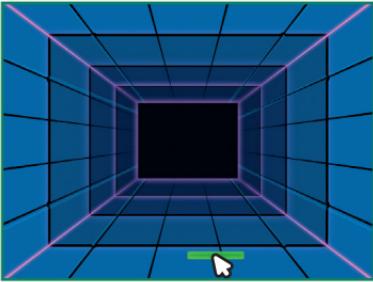
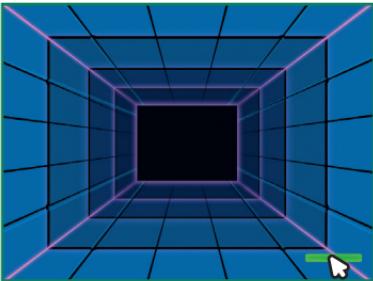
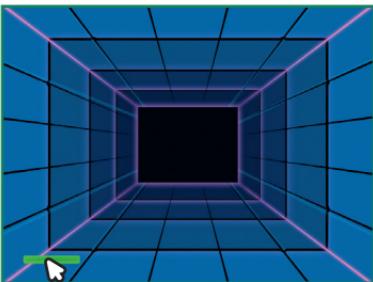
Type a larger number to move faster.

Click the green flag to start.



Move the Paddle

Control a paddle by moving
your mouse pointer.



Move the Paddle

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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.



TRY IT

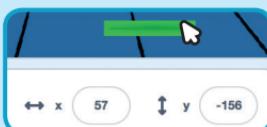
Click the green flag to start.



Move your mouse pointer to move the paddle.

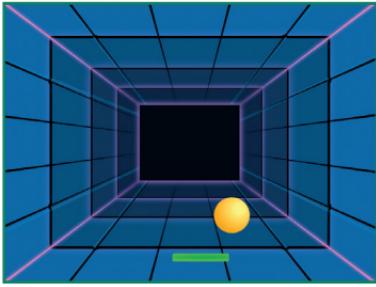
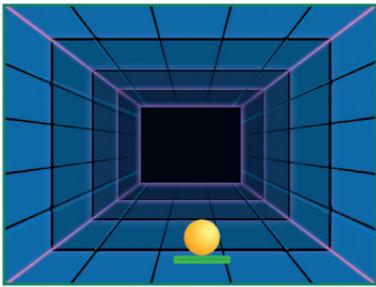
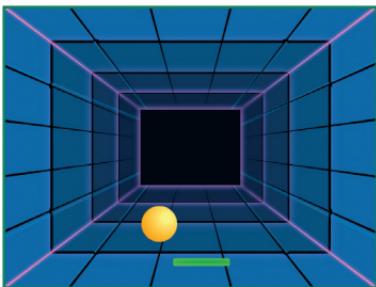
TIP

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



Bounce off the

Make the ball bounce off the paddle.



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.



The image shows a Scratch script attached to the Ball sprite. It 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 a 'turn C° degrees' block with a 'pick random 170 to 190' slider, a 'move 15 steps' block, and a 'wait 0.5 seconds' 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 'turn C° degrees' block with the text 'Insert the pick random block and type in 170 to 190'.

```
when green flag clicked
repeat
    if touching [Paddle v] then
        turn (pick random 170 to 190) degrees
        move (15) steps
        wait (0.5) seconds
end
```

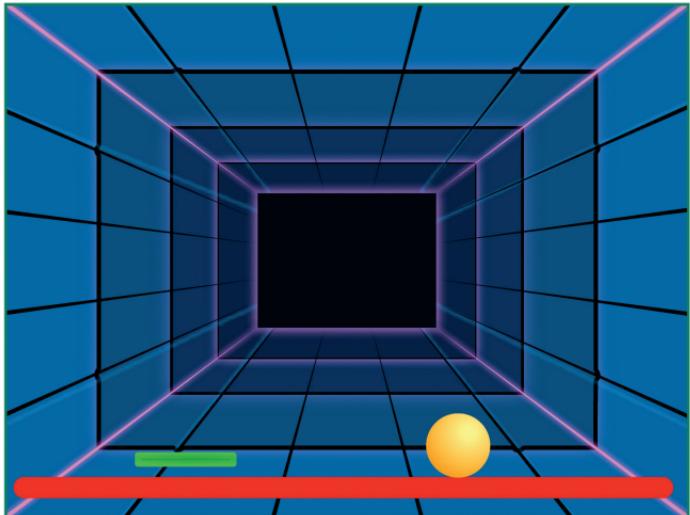
TRY IT

Click the green flag to start.



Game Over

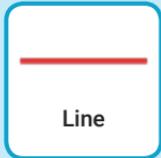
Stop the game if the ball hits the red line.



Game Over

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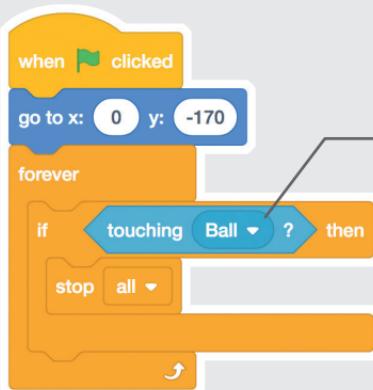
GET READY



Choose the sprite called Line.

Drag the Line sprite to the bottom of the Stage.

ADD THIS CODE



Choose Ball from the menu.

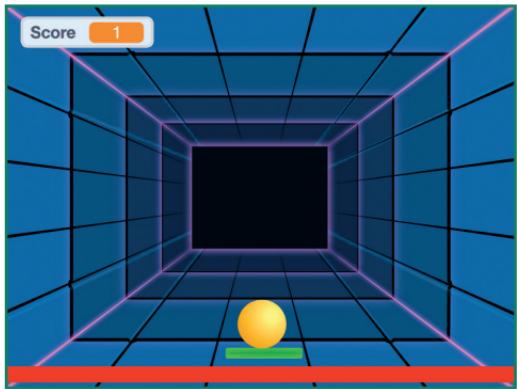
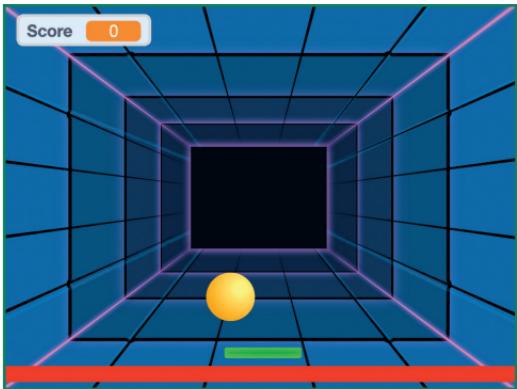
TRY IT

Click the green flag to start.



Score Points

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



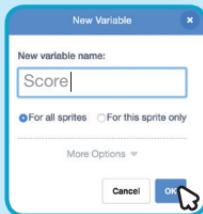
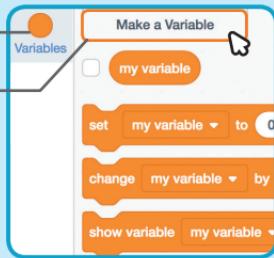
Score Points

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GET READY

Choose Variables.

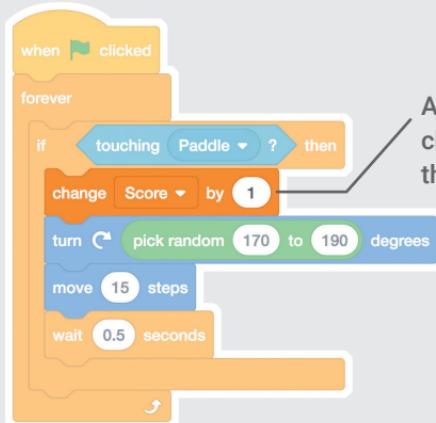
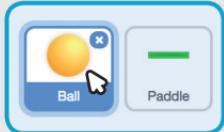
Click the Make a Variable button.



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

ADD THIS CODE

Click 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

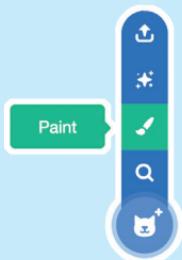
When you score enough points,
display a winning message!



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!"

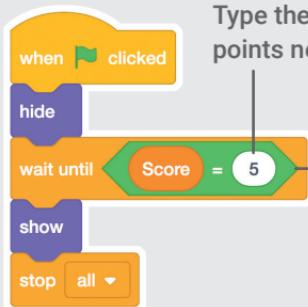


You can change the font
color, size, and style.

ADD THIS CODE



Click the Code tab.



Type the number of
points needed to win the



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

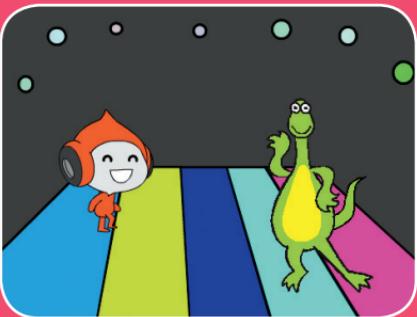
TRY IT

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

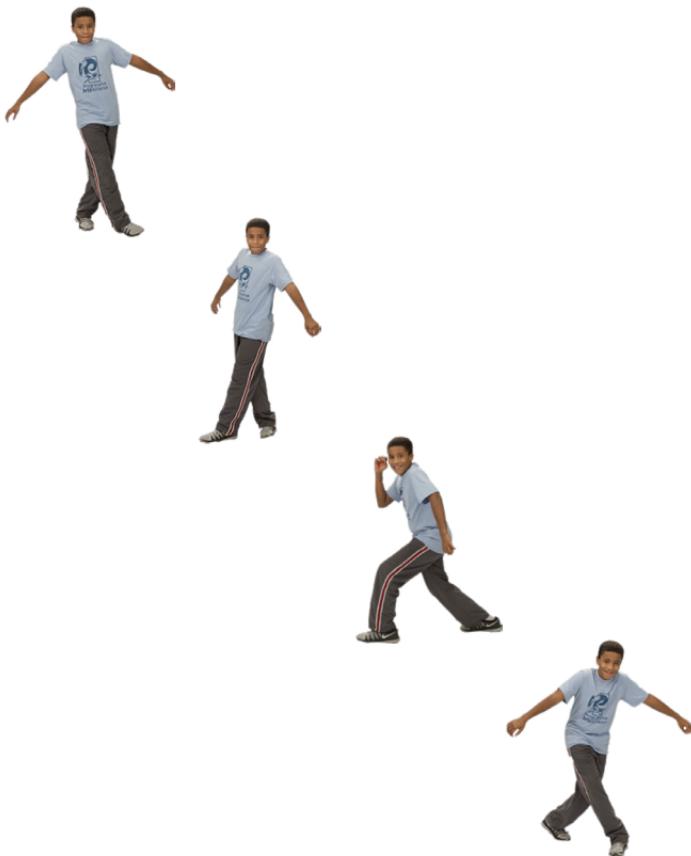
Try these cards in any order:

- **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

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GET READY



Choose a dancer.



Ten80 Dance



Costumes

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.

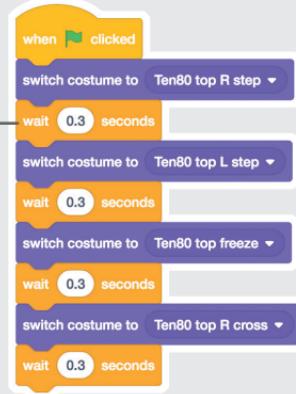
ADD THIS CODE



Click the Code tab.



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

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GET READY



Go to the
Sprite Library.



Click the **Dance** category.

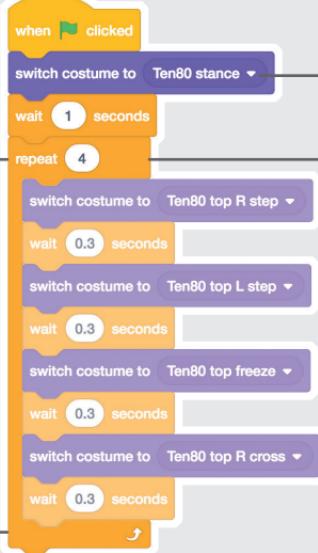


Choose a dancer.

ADD THIS CODE



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



Choose a dance pose.

Type how many times
you want to repeat the
dance.

TRY IT

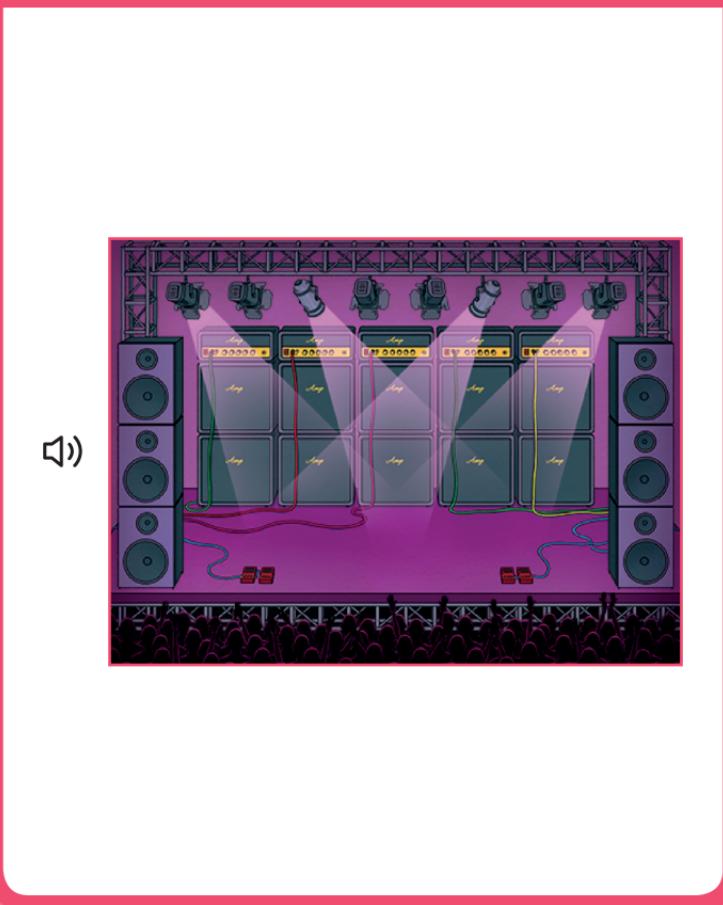
Click the green flag to start.



Play Music



Play and loop a song.



Let's Dance

3

SCRATCH

Play Music

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GET READY



Choose a backdrop.



Concert

Sounds Click the Sounds tab.



Choose a song from the Loops category.

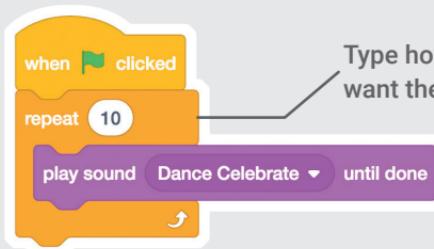
ADD THIS CODE



Click the Code tab.



Concert



Type how many times you want the song to repeat.

Make sure to use

`play sound [Dance Celebrate v] until done`

(not

`start sound [Dance Celebrate v]`)

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

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GET READY



Choose two dancers from the Dance category.



ADD THIS CODE



Anina Dance

```
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.



Champ99

```
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

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GET READY



Go to the
Sprite Library.



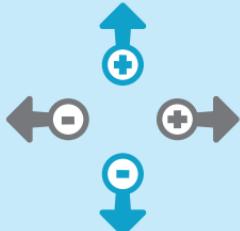
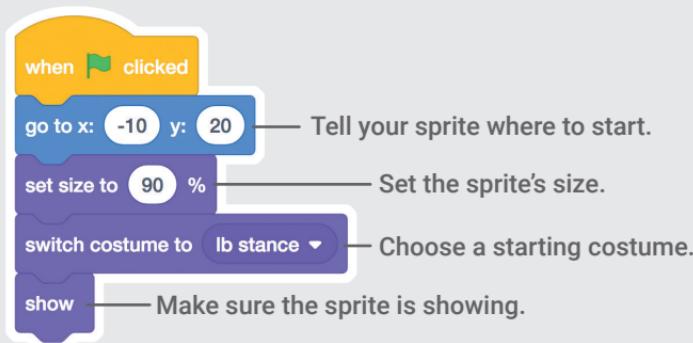
Click the Dance category.



LB Dance

Choose a dancer.

ADD THIS CODE



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.



Shadow Effect

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GET READY



Go to the
Sprite Library.



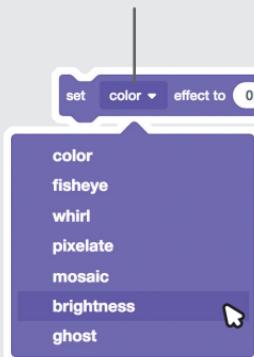
Click the Dance category.



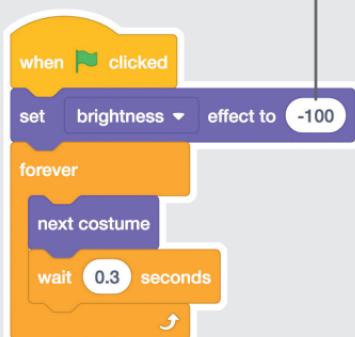
Choose a dancer.

ADD THIS CODE

Choose **brightness**
from the menu.



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



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 cate-



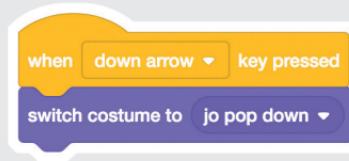
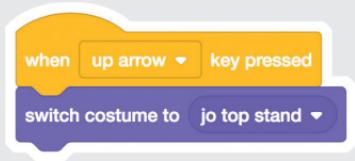
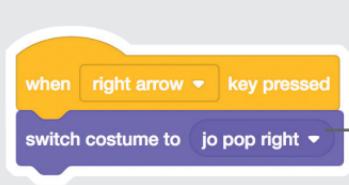
Choose a dancer.

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

scratch.mit.edu



GET READY



Choose a backdrop.

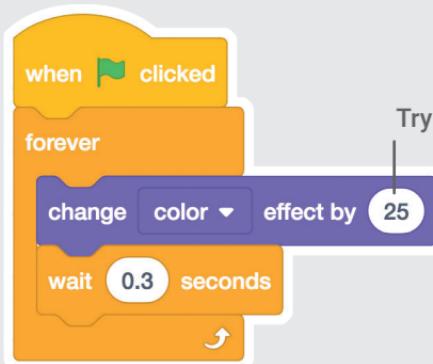


Spotlight

ADD THIS CODE



Spotlight



Try different numbers.

TRY IT

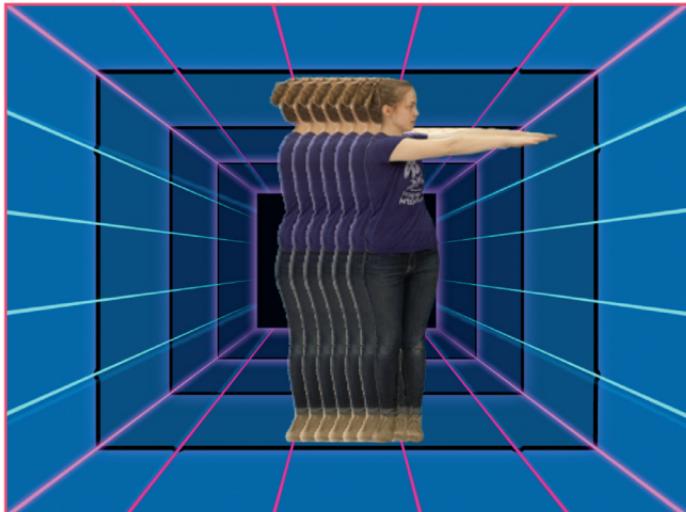
Click the green flag to start.



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.

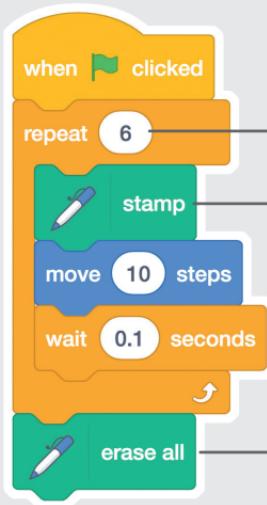


LB Dance



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.

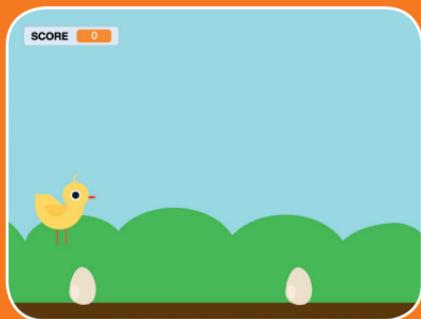
Clear all the stamps.

TRY IT

Click the green flag to start.



Jumping Game



Make a character jump over
moving obstacles.

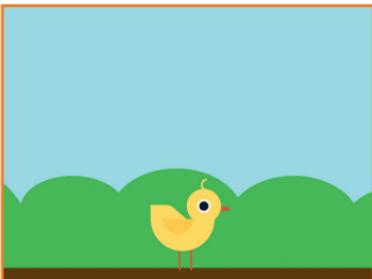
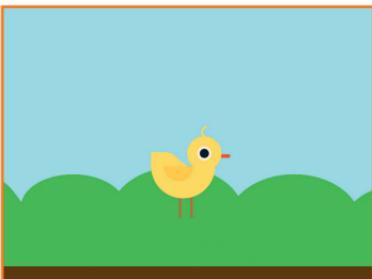
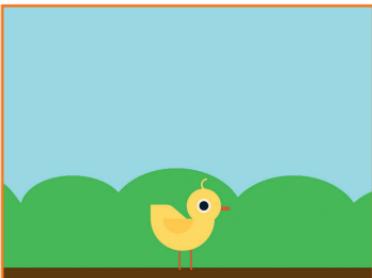
Jumping Game

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.



Blue Sky



Choose a character, like Chick.



Chick

ADD THIS CODE



Type a minus sign to go back down.

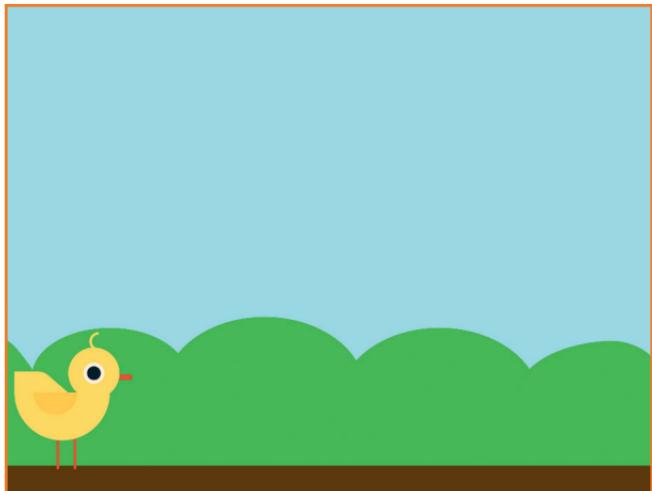
TRY IT



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.

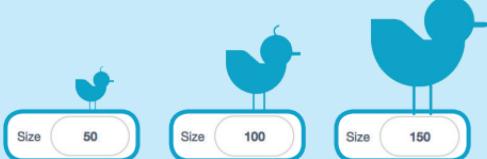
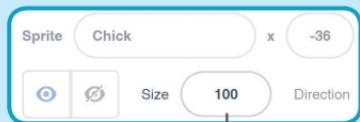
Now when you drag out a **go to** block, it will set to your character's new position.

ADD THIS CODE



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

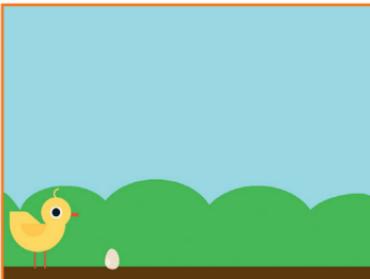
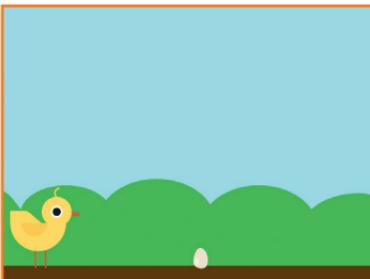
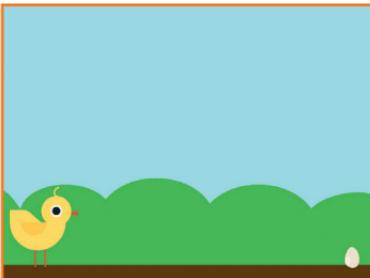
TIP



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

Moving Obstacle

Make an obstacle move
across the Stage.



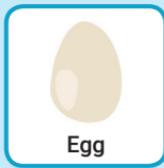
Moving Obstacle

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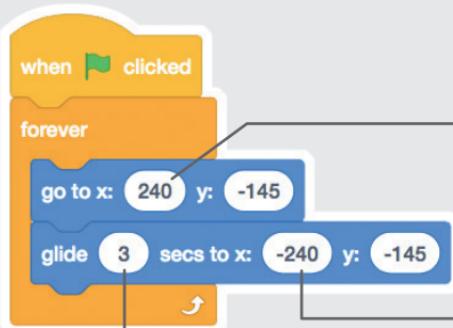
GET READY



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

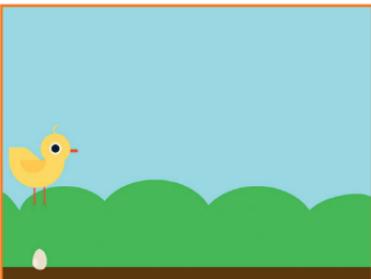
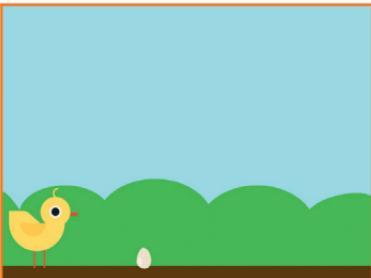
Click the green flag to start.



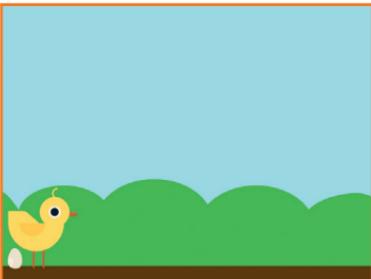
Press the **space** key on your keyboard.

Add a Sound

Play a sound when your sprite jumps.



])

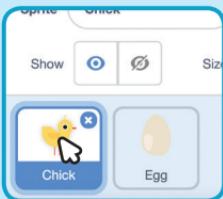


Add a Sound

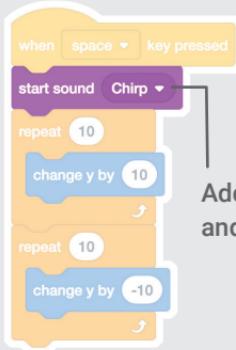
scratch.mit.edu

GET READY

Click to select the Chick sprite.



ADD THIS CODE



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

TRY IT

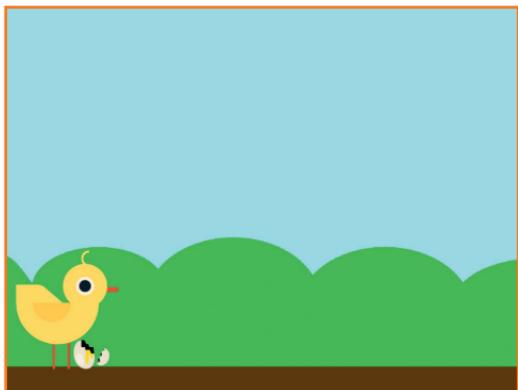
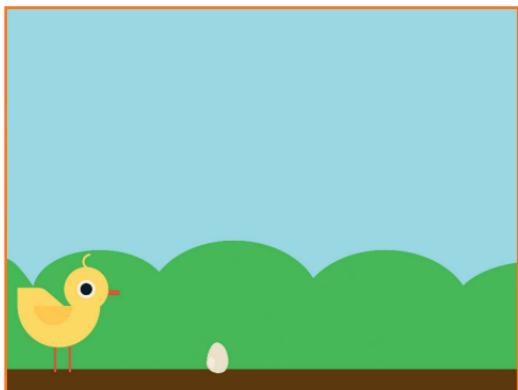
Click the green flag to start.



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

Stop the Game

Stop the game if your sprite touches the egg.

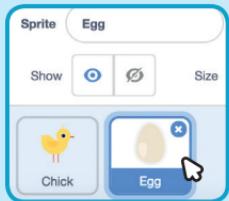


Stop the Game

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GET READY

Click to select the Egg sprite.



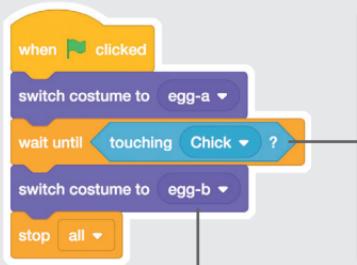
Click the Costumes tab to see the Egg sprite's costumes.



ADD THIS 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

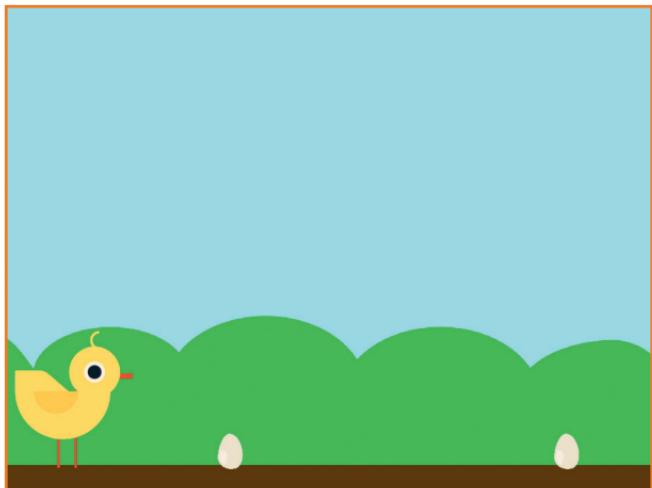
Click the green flag to start.



Press the space key on your keyboard.

Add More Obstacles

Make the game harder by
adding more obstacles.



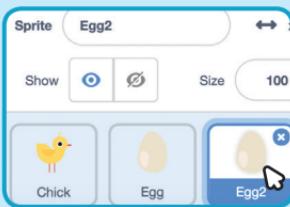
Add More Obstacles

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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.

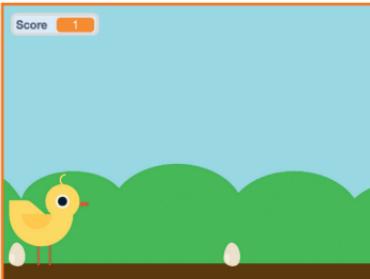
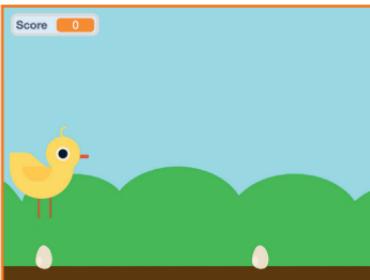
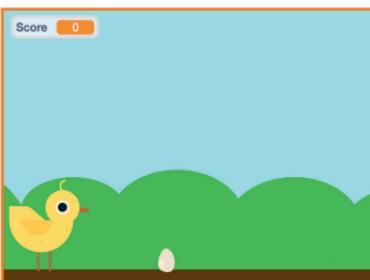
TRY IT

Click the green flag to start.



Score

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



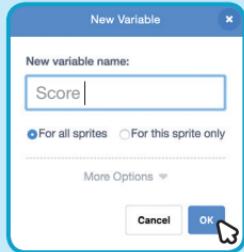
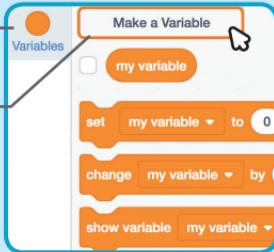
Score

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GET READY

Choose Variables.

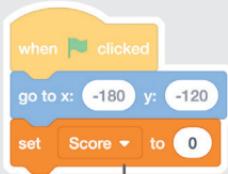
Click the Make a Variable button.



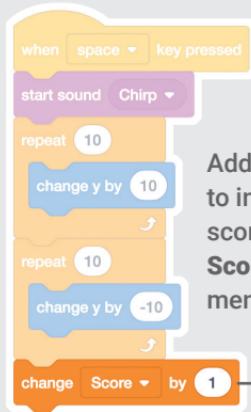
Name this variable **Score** and then click **OK**.

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.



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.



Choose a sprite to be
your pet, like Monkey.



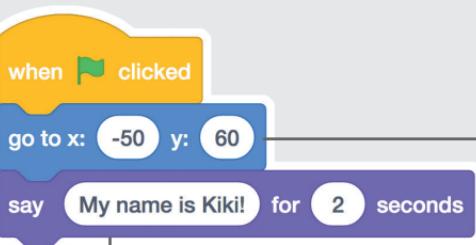
Pick a sprite with more
than one costume.



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.



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.



Animate Your Pet

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GET READY

Costumes

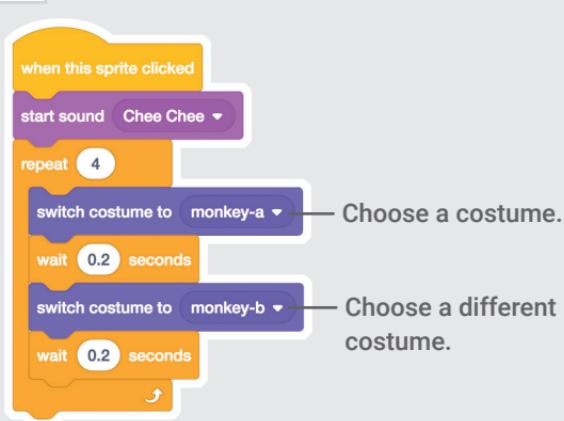
Click the **Costumes** tab to see your pet's costumes.



ADD THIS CODE

Code

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



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.



Monkey



Choose a sound from the Sounds Library, like Chomp.



Bananas

Choose a food sprite, like Bananas.

ADD THIS CODE



Click the **Code**



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 mes-

Select your



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

Choose **Bananas** from the menu.

Glide to the starting posi-

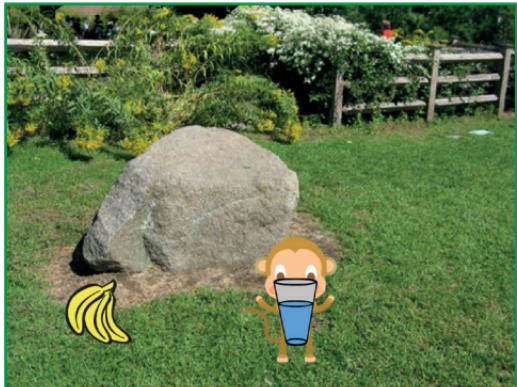
TRY IT

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 Water.



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 ▾
  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
  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

Let your pet choose what it will say.



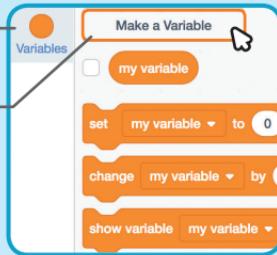
What Will Your Pet Say?

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GET READY

Choose Variables.

Click the Make a Variable button.



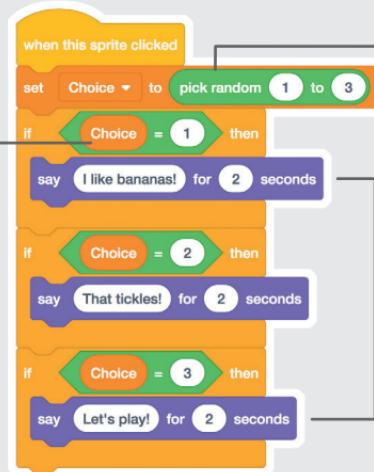
Name this variable Choice and then click OK.

ADD THIS CODE



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

Choice
= 1



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



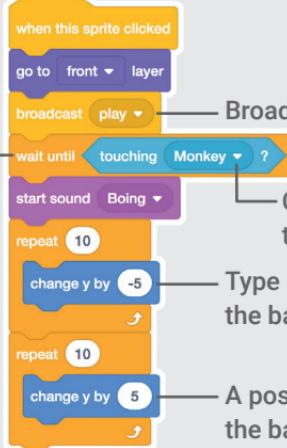
Choose a sprite,
like Ball.



ADD THIS CODE



Insert the touching block
into the wait until block.

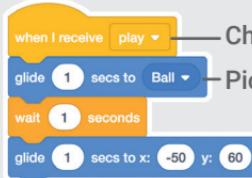


Broadcast a new message.

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.

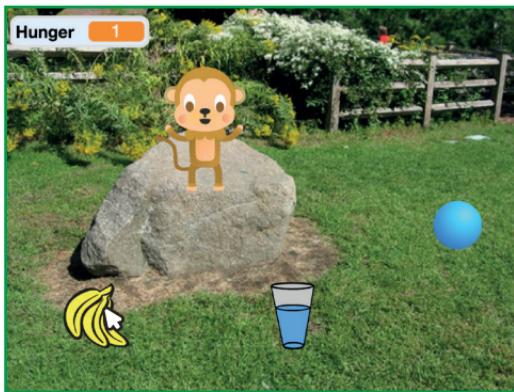
TRY IT

Click the ball.



How Hungry?

Keep track of how hungry your pet is.



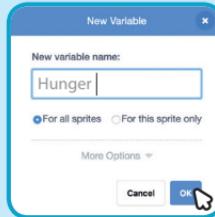
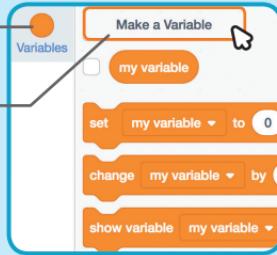
How Hungry?

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GET READY

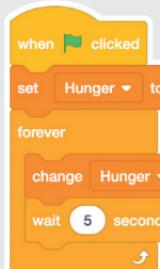
Choose Variables.

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

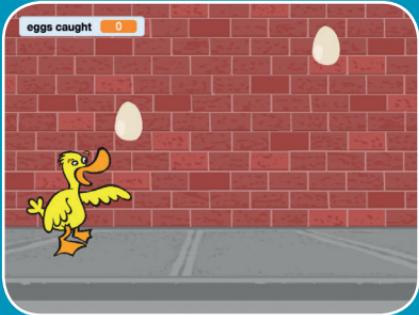
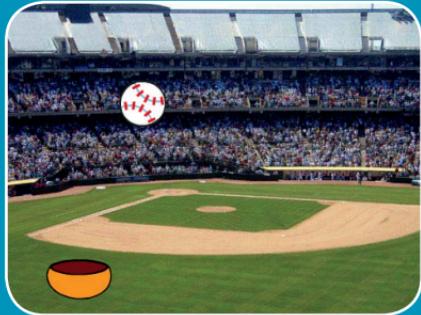
Click the green flag to start.



Then click the food.



Catch Game Cards



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



Catch Game Cards

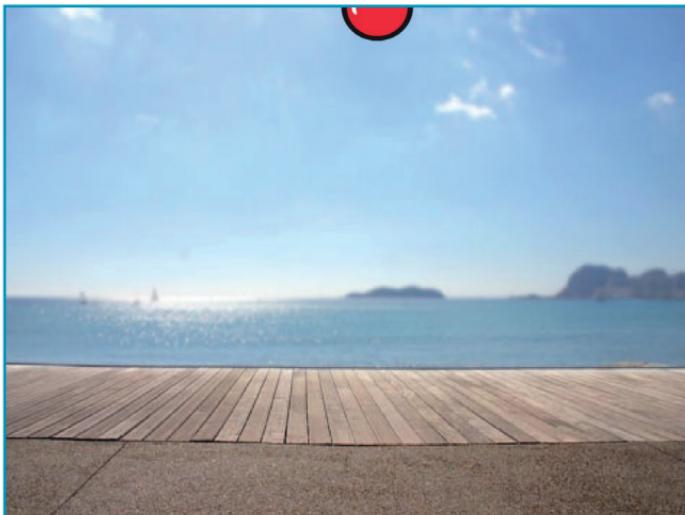
Use these cards in this order:

- 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



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

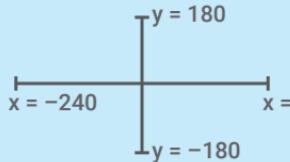
TRY IT

Click the green flag to start.



TIP

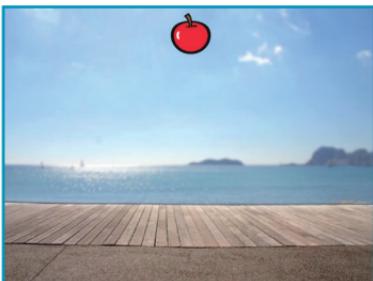
y is the position on the Stage from top to bottom.



Fall Down



Make your sprite fall down.

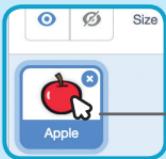


Fall Down

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GET READY



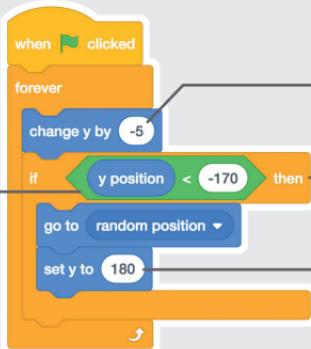
Click to select the Apple sprite.

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

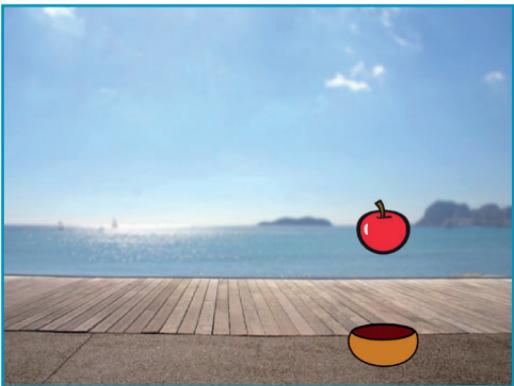
Use



to move up or down.

Move the Catcher

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



Move the Catcher

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GET READY

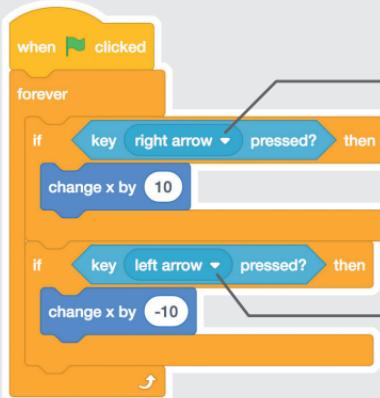


Choose a catcher,
like Bowl.



Drag the bowl
to the bottom
of the Stage.

ADD THIS CODE



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

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

TRY IT

Click the green flag
to start.

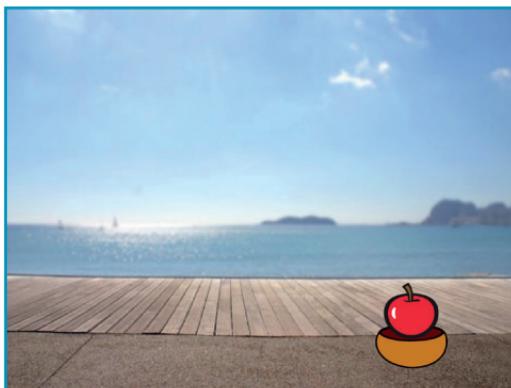
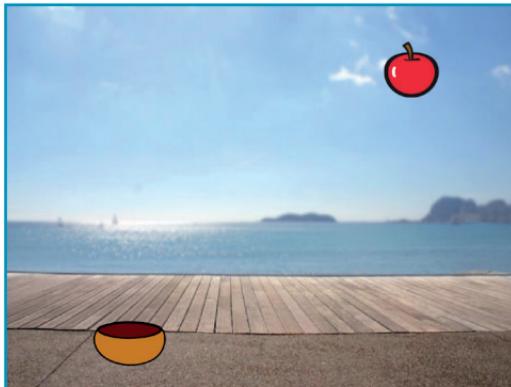


Press the arrow keys to
move the catcher.

Catch It!



Catch the falling sprite.



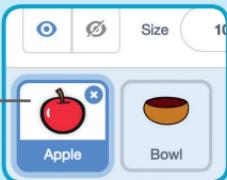
Catch It!

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GET READY

Click to select
the Apple



ADD THIS CODE



Choose **Bowl** from the menu.

Choose a sound.

TIP



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



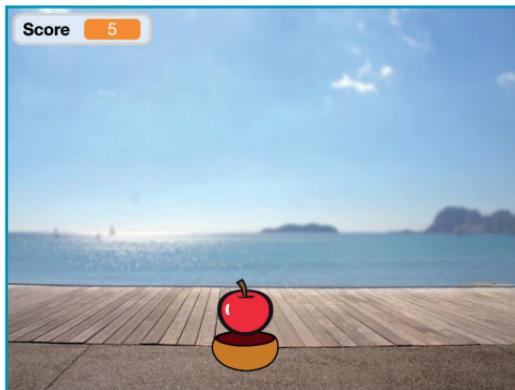
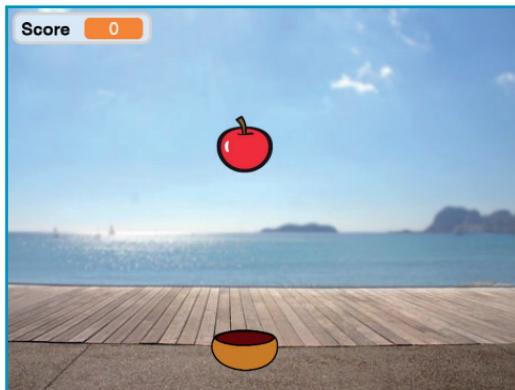
Then choose a sound
from the Sounds Library.



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

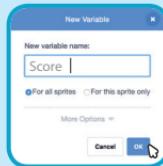
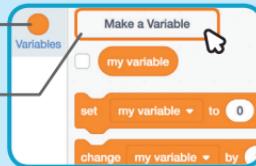
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GET READY

Choose Variables.

Click the Make a Variable button.



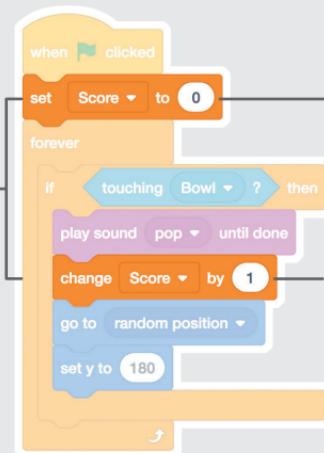
Name this variable **Score** and then click **OK**.

ADD THIS CODE

Add two new blocks to your code:



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



Add this block to reset the score.

Add this block to increase the score.

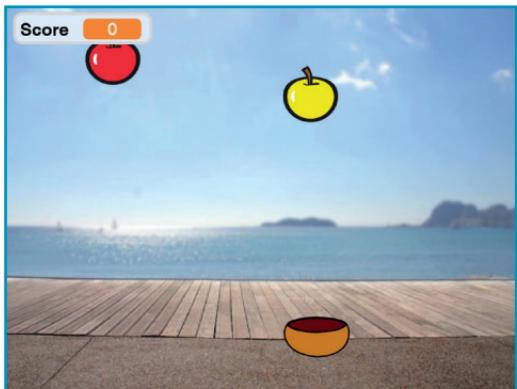
TRY IT



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

Bonus Points

Get extra points when
you catch a golden sprite.



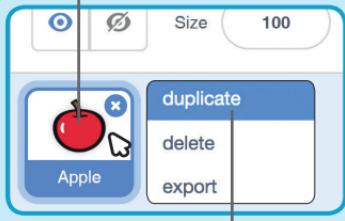
Bonus Points

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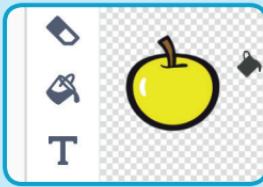
GET READY

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



Choose **duplicate**.

Costumes Click the Costumes tab.



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

ADD THIS CODE



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!

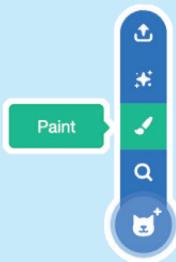


You Win!

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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!"

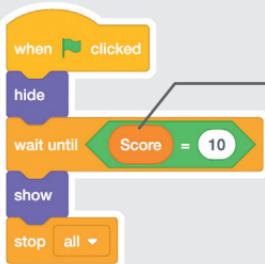


You can change the font color,
size, and style.

ADD THIS CODE



Click the **Code** tab.



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

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.

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

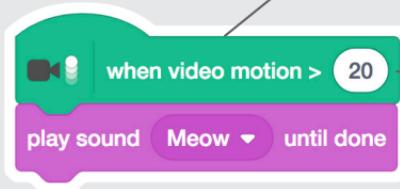


Click the Extensions button
(at the bottom left of the screen).



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 move-
ment.

TRY IT

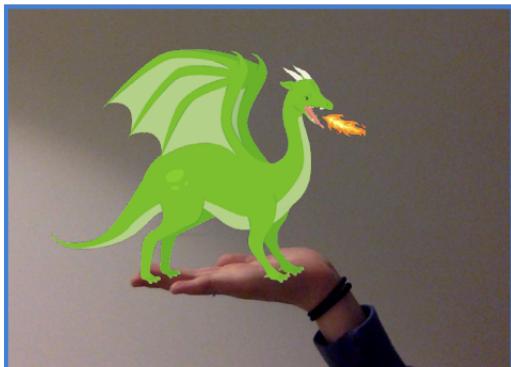
Move your hand to pet the cat.





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
Sense motion with the camera.



Choose a sprite to animate.



Dragon

Pick a sprite with more than one costume.

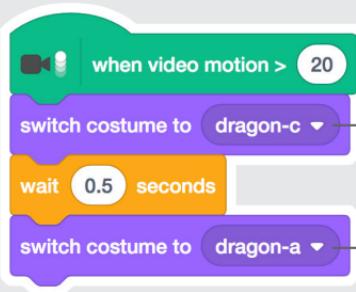


Scroll over sprites in the Sprite Library to see their different costumes.

ADD THIS CODE



Dragon



Choose one costume.

Choose a different costume.

TRY IT

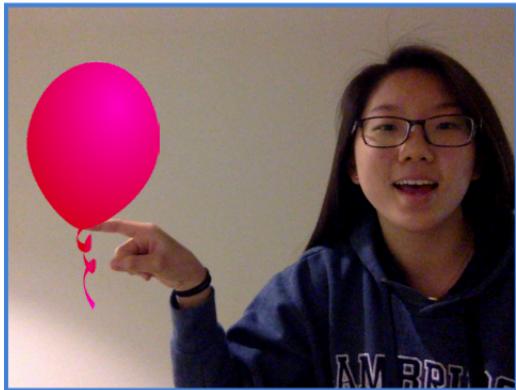
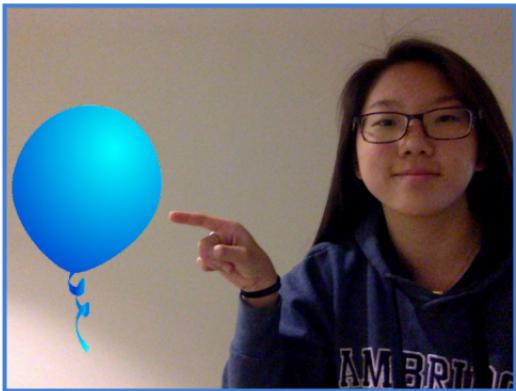
Move around to animate the dragon.



Pop a Balloon



Use your finger to pop a balloon.

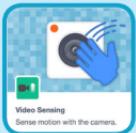


Pop a Balloon

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GET READY

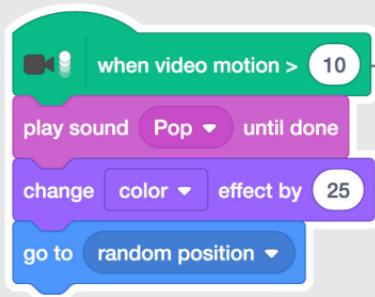


Click the Extensions button,
then choose Video Sensing.



Choose a sprite, like Balloon1.

ADD THIS CODE



Type a larger number
to make it harder to

TRY IT

Use your finger to pop the balloon.



Play the Drums



Interact with sprites that play sounds.

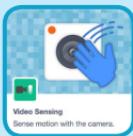


Play the Drums

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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



```
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

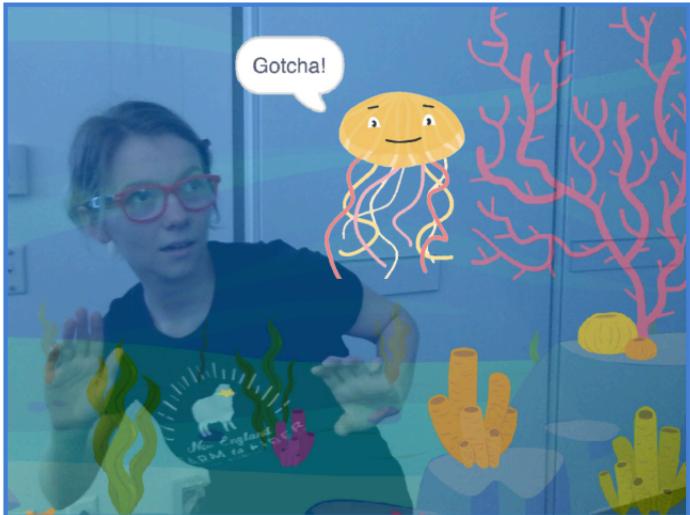
Use your hands to play the drums!



Keep Away Game



Move around to avoid a
sprite.

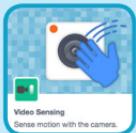


Keep Away Game

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GET READY



Click the Extensions button, then choose Video Sensing.

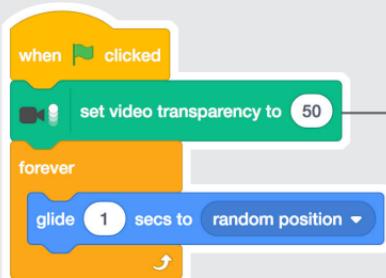


Choose a backdrop, like Ocean.

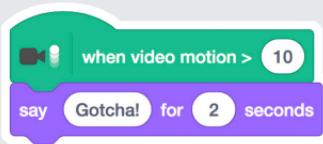


Choose a sprite, like Jellyfish.

ADD THIS CODE



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



TRY IT

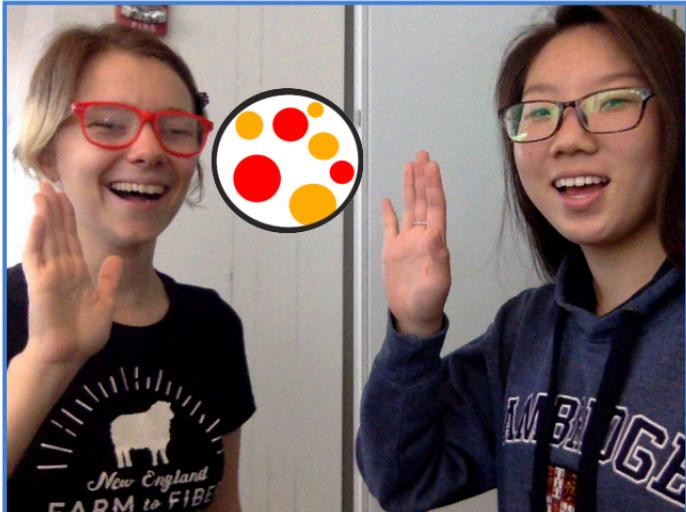
Move around to avoid the jellyfish.





Play Ball

Use your body to move a sprite across the screen.



Play Ball

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GET READY

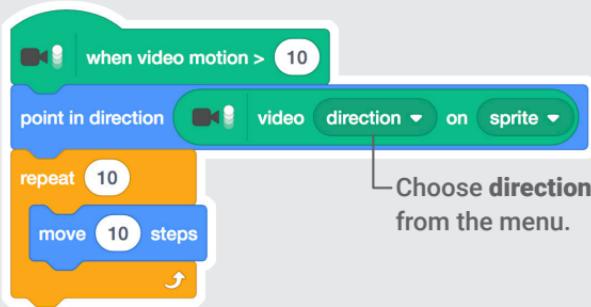


Click the Extensions button,
then choose **Video Sensing**.



Choose a sprite, like Beach-
ball.

ADD THIS CODE



Choose direction
from the menu.

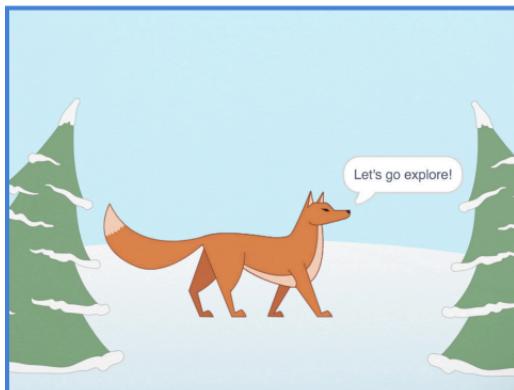
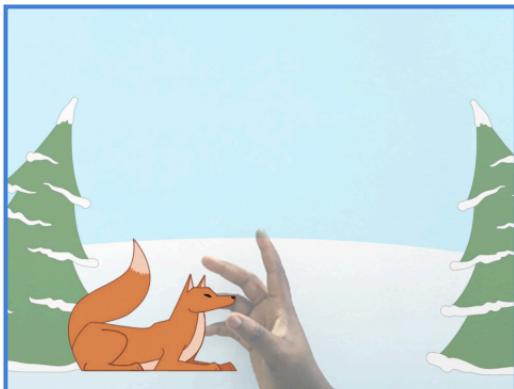
TRY IT



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!

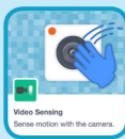
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GET READY



Click the Extensions button.



Choose Video Sens-



Choose a backdrop.



Winter



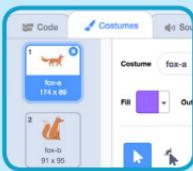
Choose a sprite.



Fox



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



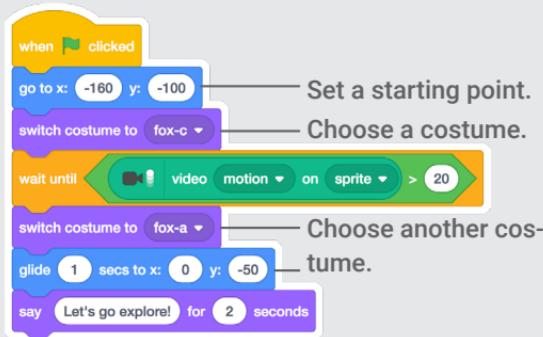
ADD THIS CODE



Click the Code tab.



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



Set a starting point.

Choose a costume.

Choose another costume.

TRY IT

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