

Year 5 -Scratch

Programming

Children to create what they can, when they can.
No fixed week by week task deadlines.

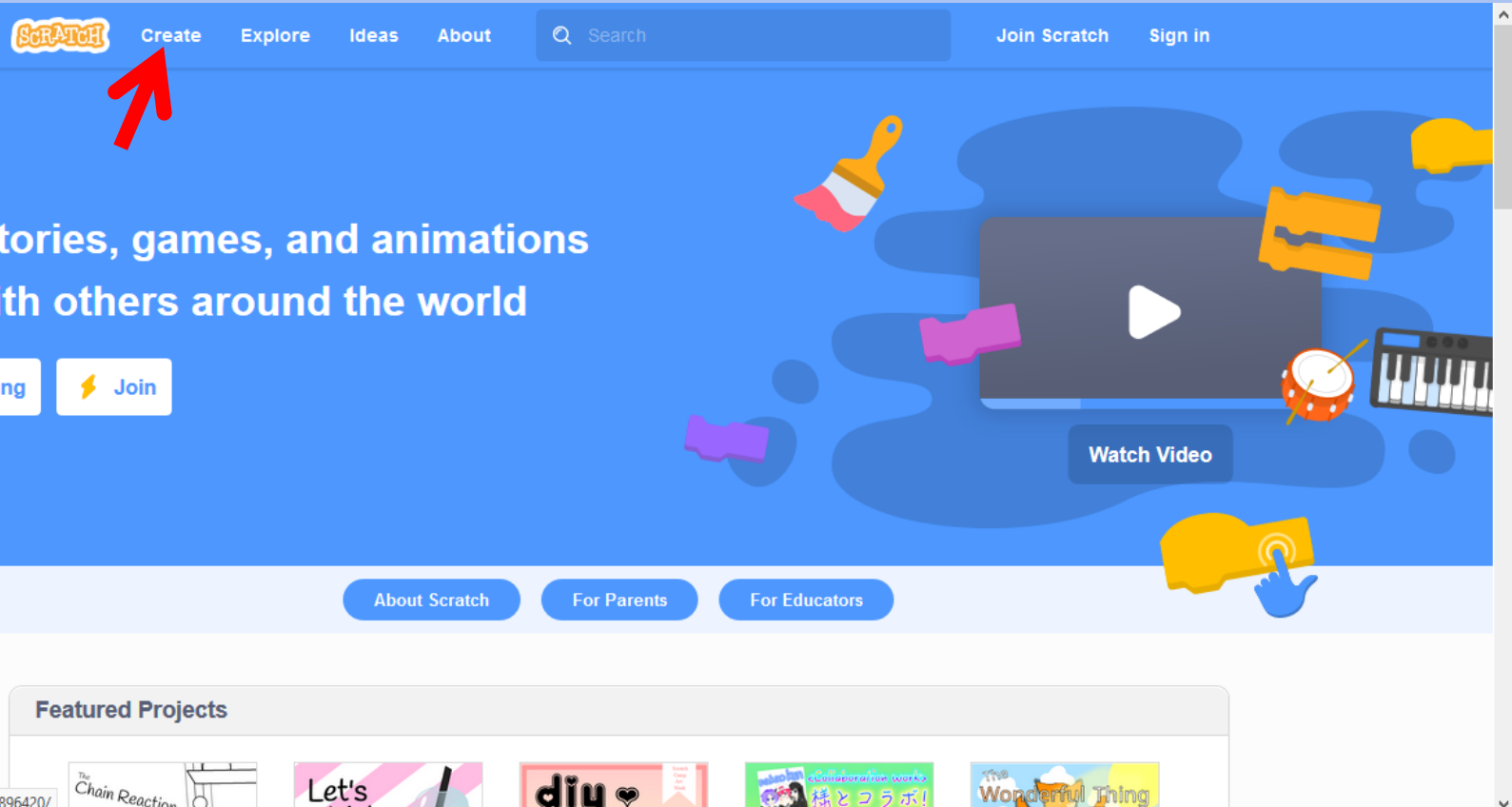
Please work through Tasks 1 to 6, then pick and
choose any from Task 7.

Please note this is a website where the rest of the
world can upload their examples of games for all
to see. The school does not have control of the
content of these uploaded games.

Go to website - scratch.mit.edu

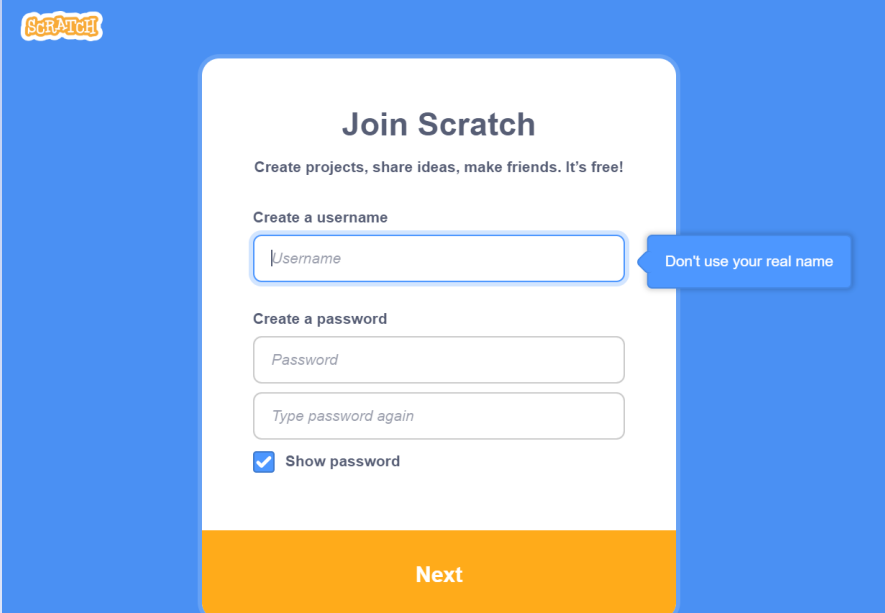
Click on Create to start – this will not save the game

Task 1



Go to website - scratch.mit.edu

- If you wish to save your creations you will need to join.
- **ASK YOUR TRUSTED ADULT'S PERMISSION!**
- It asks for username and password.
- The country you live in.
- Month and Year born.
- Gender – but can tick prefer not to say.
- It does ask for an email address.



The image shows the Scratch website's 'Join Scratch' form. The form is white with a blue border and is set against a blue background. At the top left of the form is the Scratch logo. The title 'Join Scratch' is centered at the top. Below the title is the text 'Create projects, share ideas, make friends. It's free!'. The form has two main sections: 'Create a username' and 'Create a password'. The 'Create a username' section has a text input field with the placeholder 'Username' and a blue button to the right that says 'Don't use your real name'. The 'Create a password' section has two text input fields: the first with the placeholder 'Password' and the second with the placeholder 'Type password again'. Below these fields is a checkbox labeled 'Show password' which is checked. At the bottom of the form is an orange button labeled 'Next'.

Scratch

Join Scratch

Create projects, share ideas, make friends. It's free!

Create a username

Don't use your real name

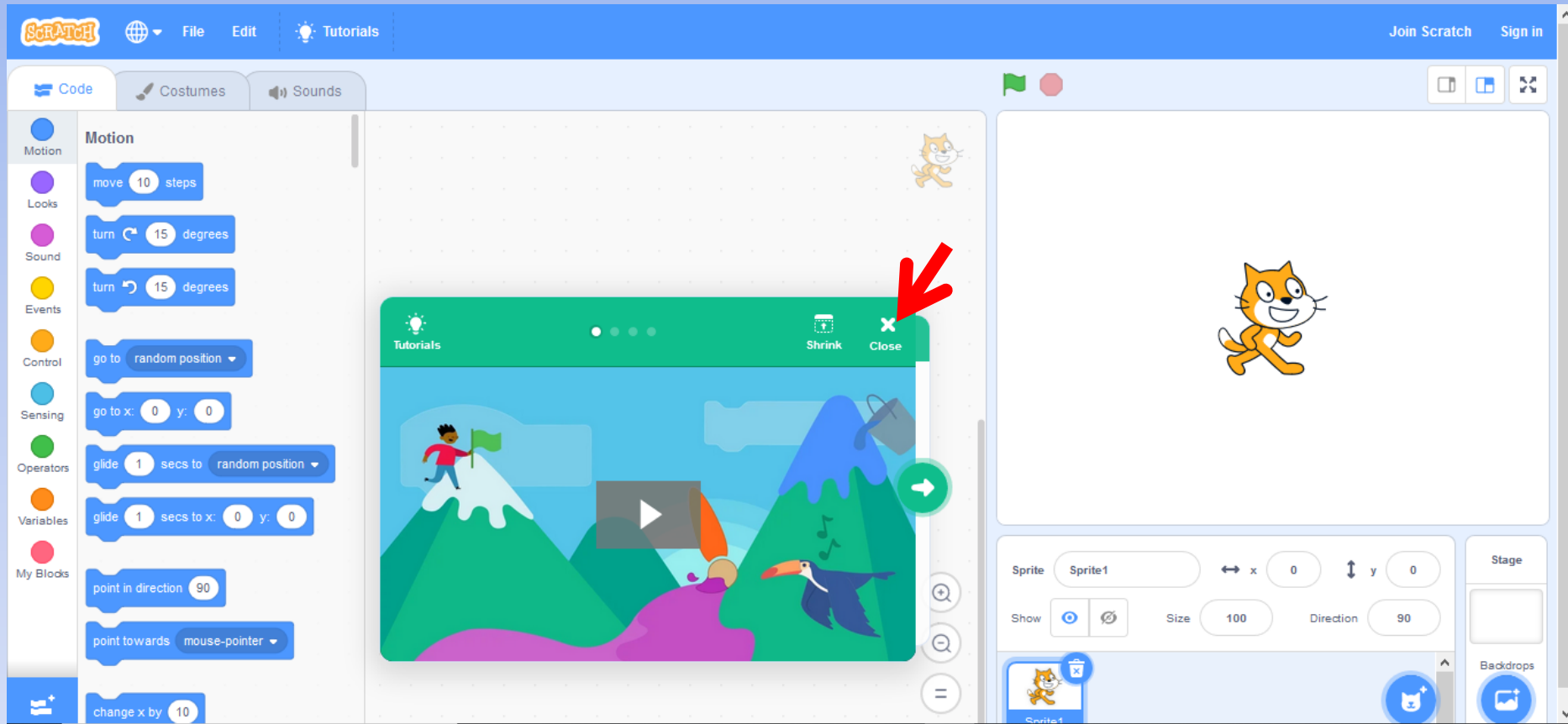
Create a password

☒ Show password

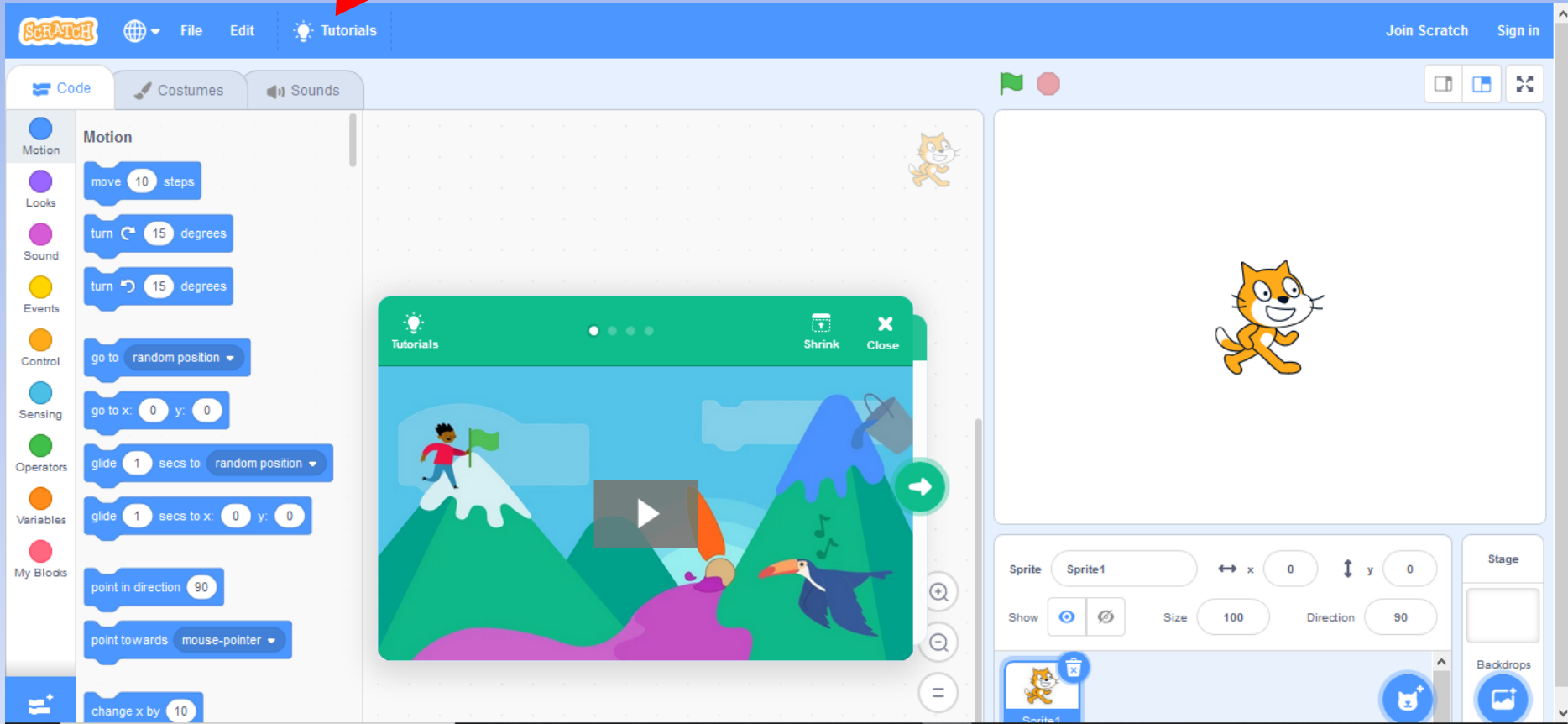
Next

The Scratch screen

Close the tutorial video for now



Online Tutorials



Online Tutorials

← Back

Choose a Tutorial



All

Animation

Art

Music

Games

Stories



Getting Started



Imagine a World



Code a Cartoon



Create Animations That Talk



Talking Tales



Animate a Name



Make Music



Create A Story

Parts of the Screen

Block code menus

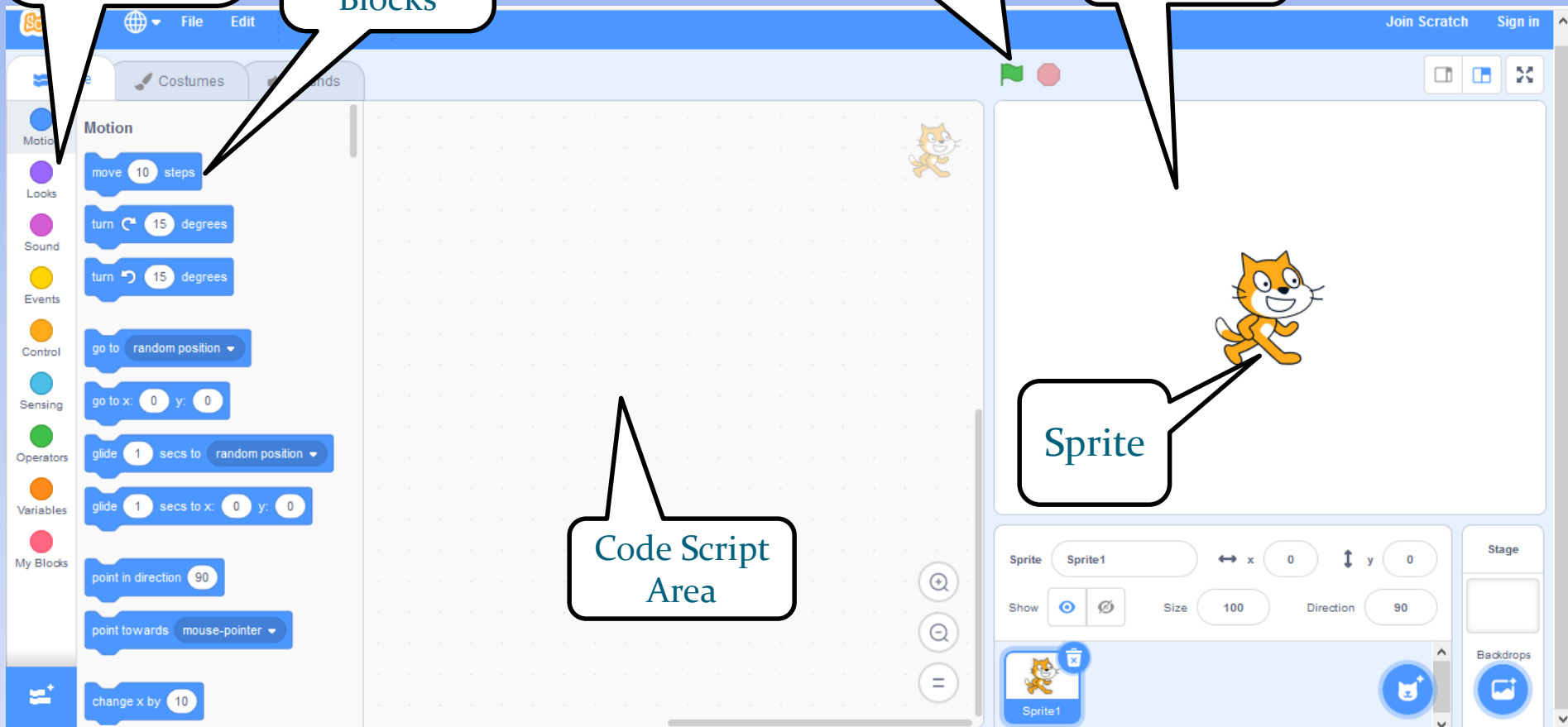
Code Script Blocks

Green Flag

Stage

Sprite

Code Script Area



The Code Blocks

Motion

Looks

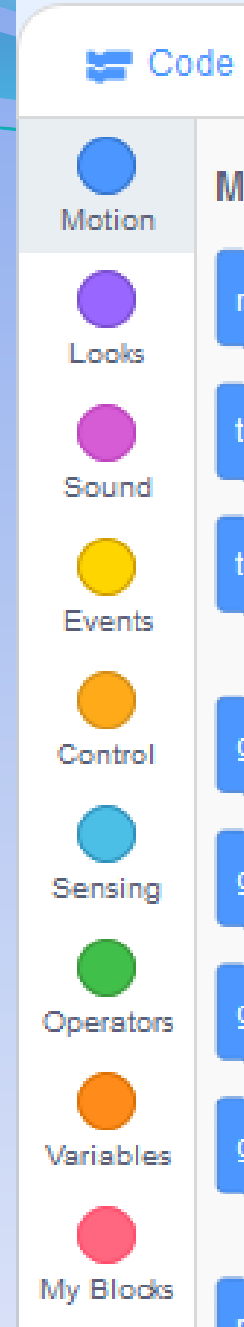
Sound

Events

Control

Sensing

Operators

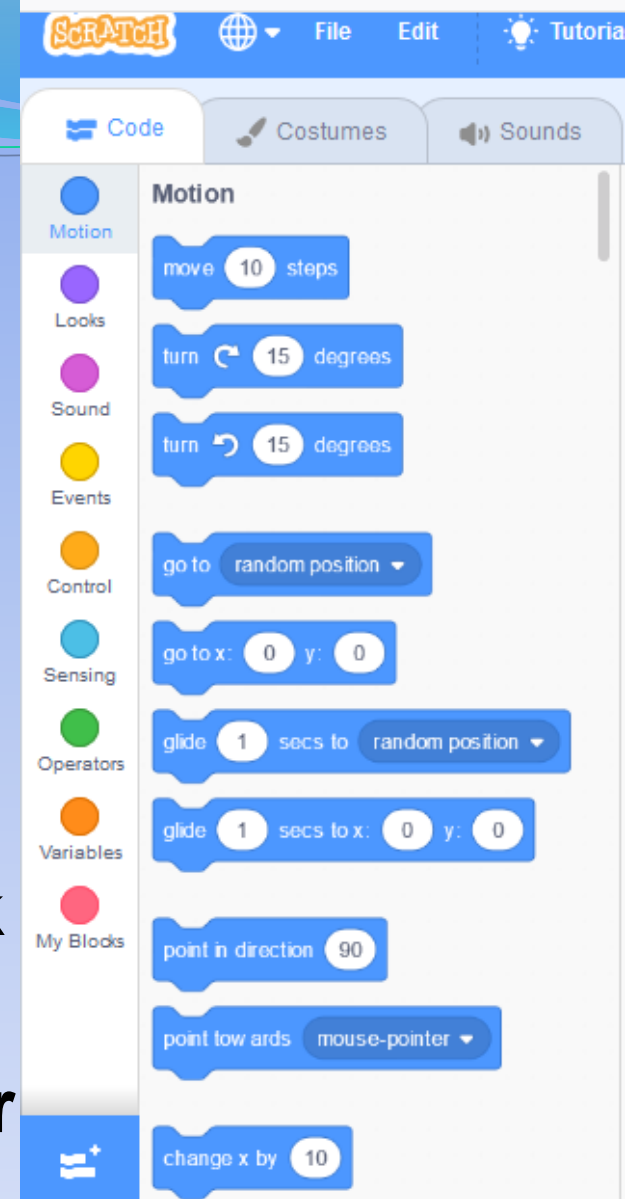


Motion - Blue

These blocks move the sprites around the stage – up, down, left and right – turns by degrees – move towards eg mouse pointer.

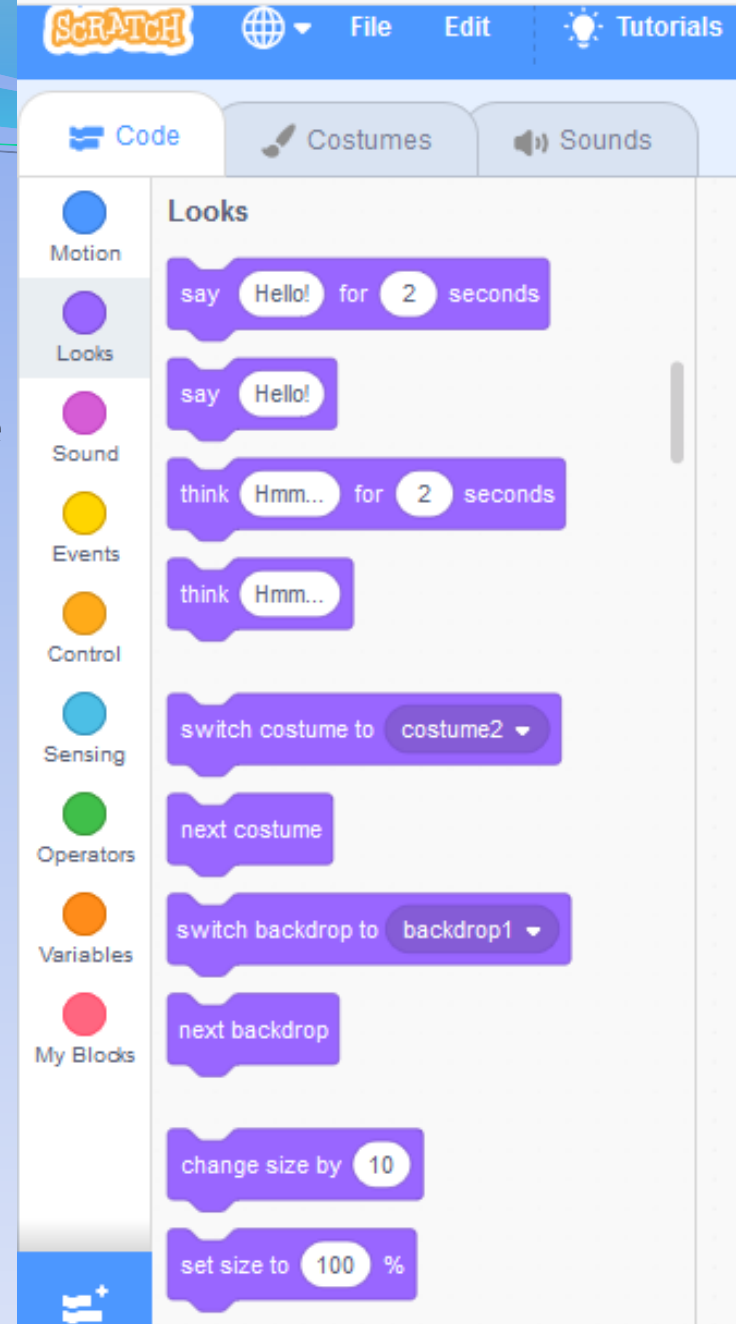
Notice the blocks are like a jigsaw piece and this helps the blocks link together – this joins the code up.

Note: code blocks snap together like jigsaw pieces.



Looks - Purple

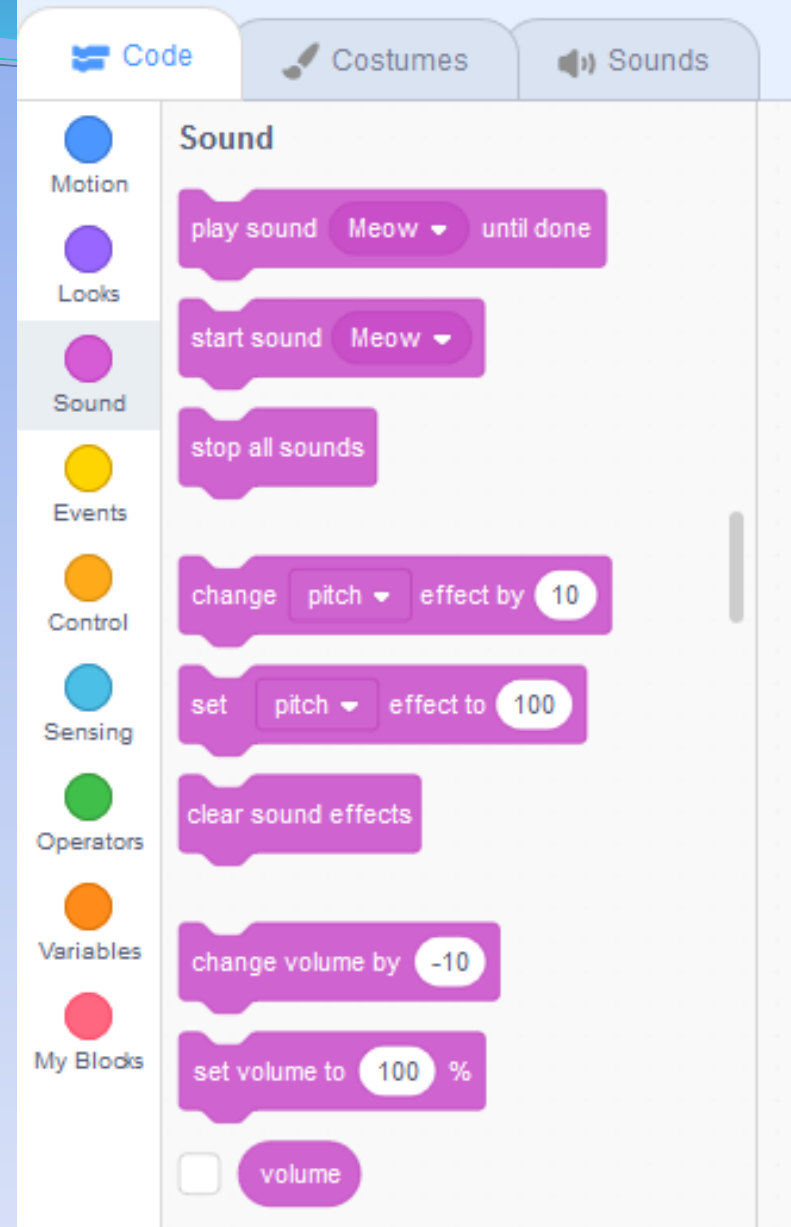
These blocks control the appearance of sprites and the backdrops, including speech bubbles and special effects.



Sound - Pink

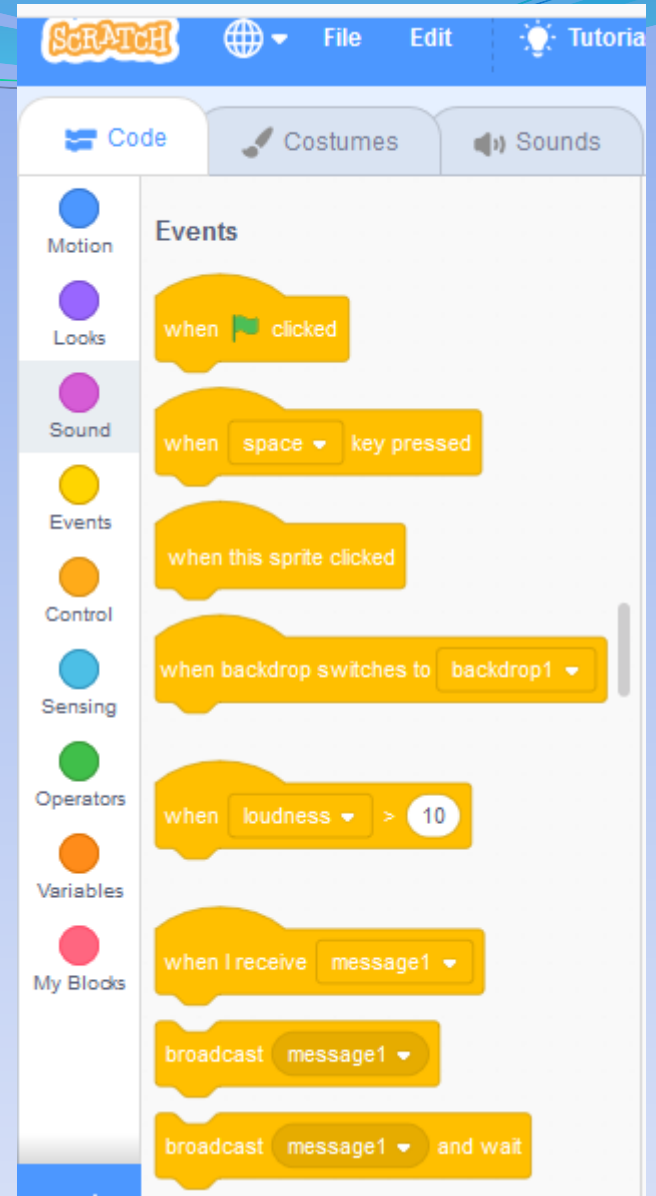
These blocks add and control when sound is used in a set of coding.

There are lots of sound files already in Scratch for you to use.



Events – Orange

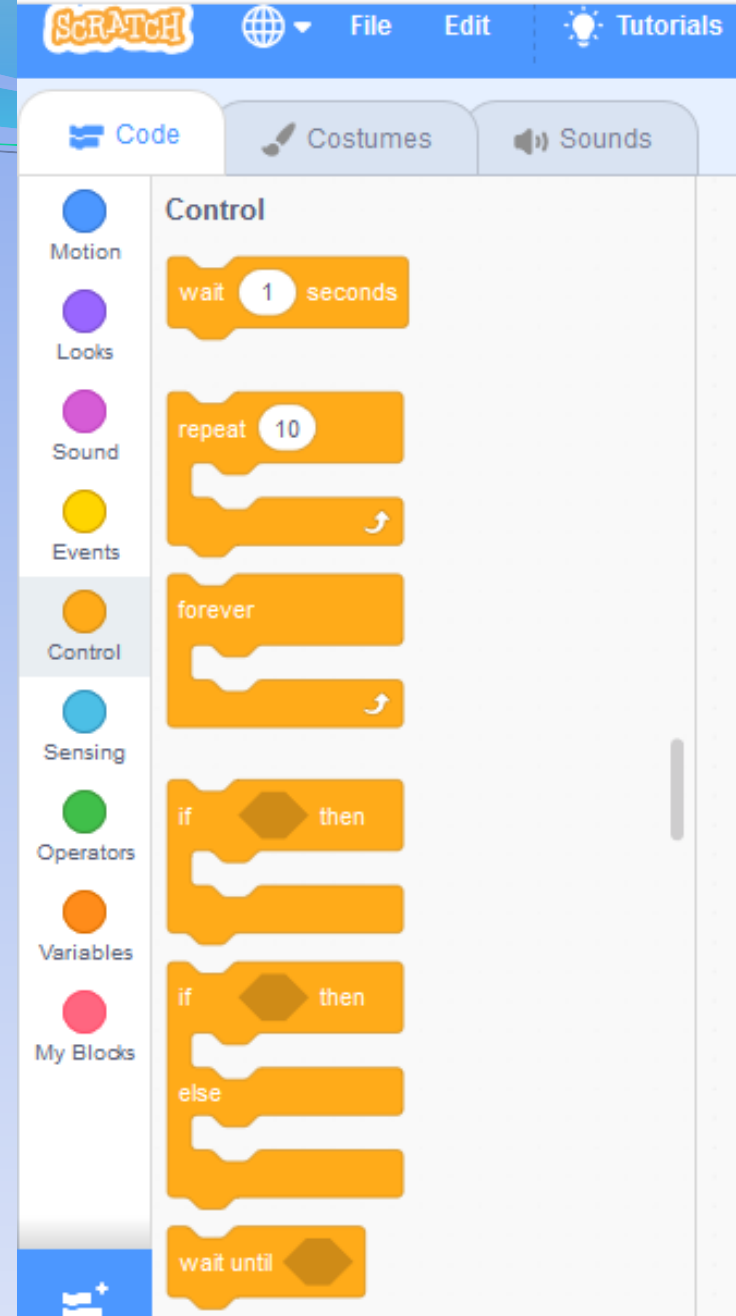
Events - control the code itself. Green flag, starts game. When space – controls if a key is pressed.



Control – Dark Orange

Control blocks control the code itself, including when and how long it runs.

You can also use control blocks to create 'clones' or exact duplicates of a sprite.
EG wait, forever loop



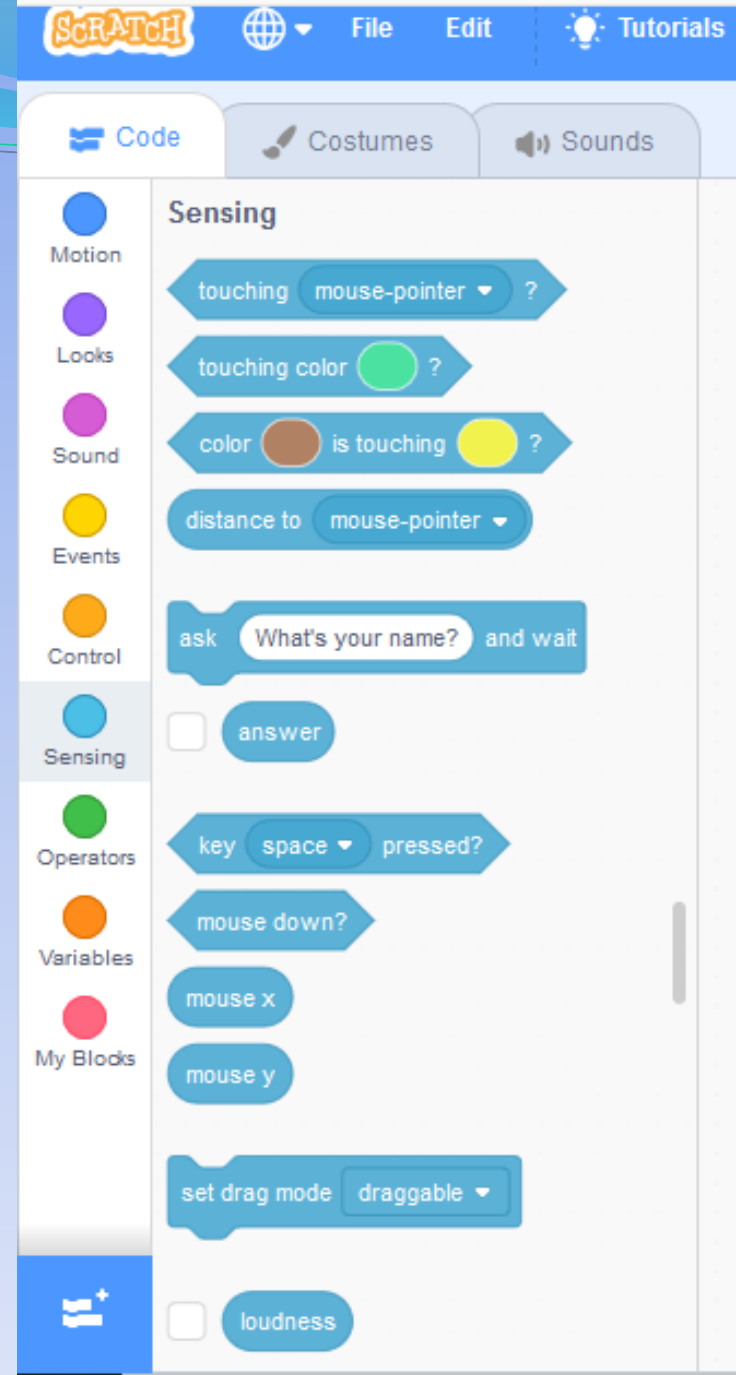
Sensing

These blocks are used to set **conditions** for the other blocks.

Most of these blocks are round or diamond-ended.

These blocks need to be snapped into other blocks

These blocks set conditions 'IF' – known as Booleans, eg yes/no logic.



Looks

Use these blocks to change the appearance of your sprite, such as changing its costume or its size. You may also apply colour effects, or make a speech or thought bubble appear from your sprite.

Motion

Use these blocks to move or rotate your sprite, or to access its position as a number.

Events

Use these blocks to trigger when algorithms should run. Use the 'Green Flag' block to run code when the program runs.



Control

Use these blocks to adjust the flow of instructions from one block to another.

Access **repeat** loops and **if** blocks here.

Sound

Use these blocks to play sounds, drums and notes.

Different sprites come with different sounds, or you can add your own via the 'Sounds' Tab.

Motion

Motion

Looks

Looks

Sound

Sound

Events

Events

Control

Control

Sensing

Sensing

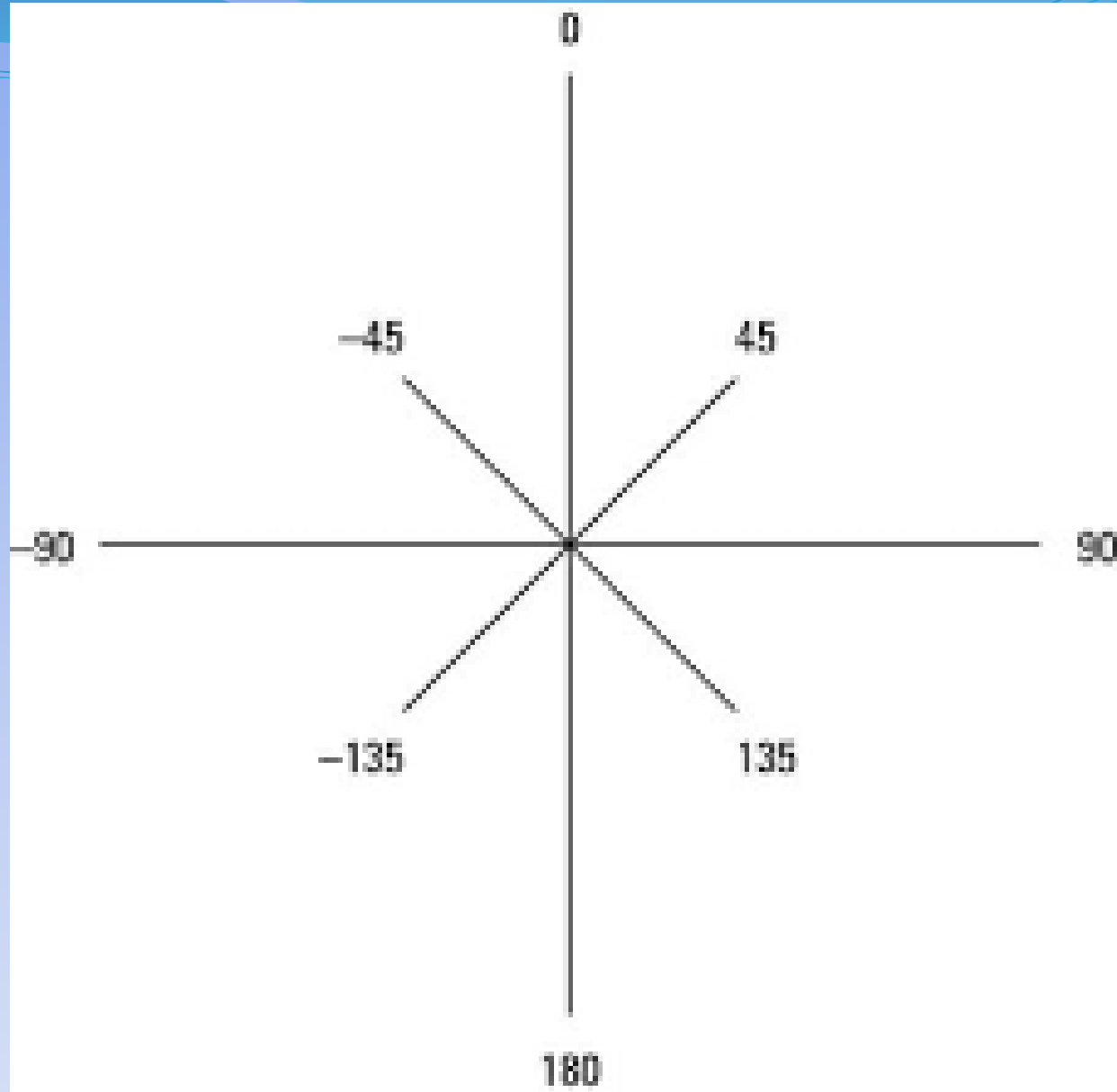
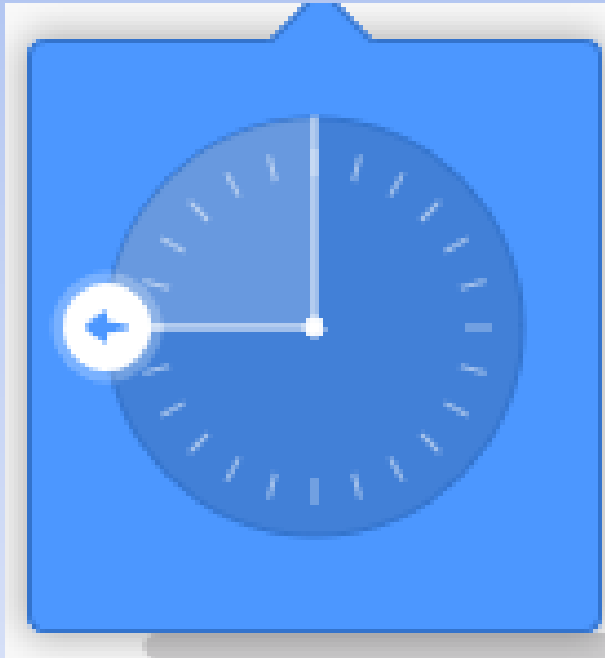
Sensing

Use these blocks to sense for interaction between sprites or with a user of the program.

Use these with 'Control' blocks to make your program react to its environment somehow.

Direction

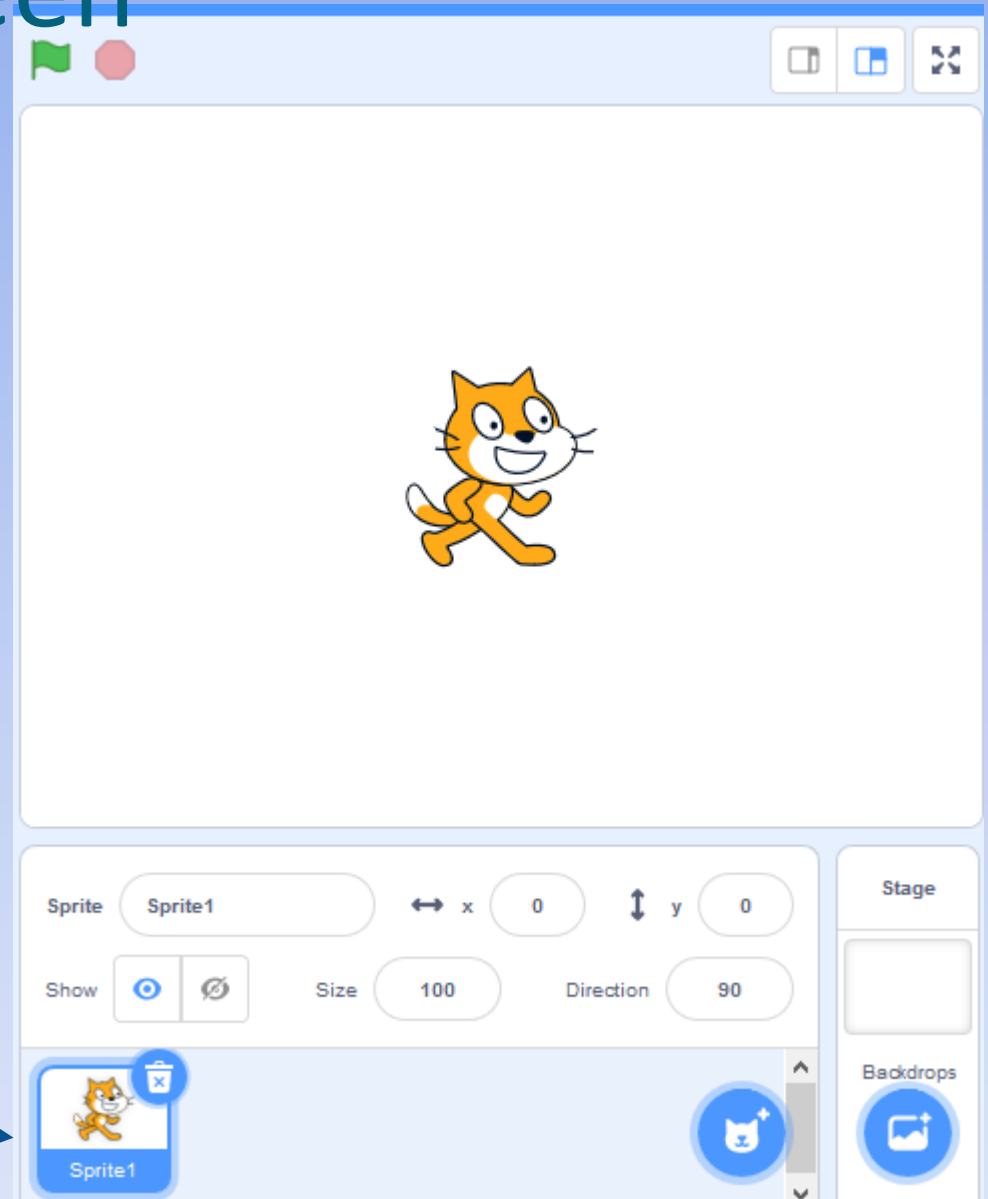
Face the sprite
in a direction.



Parts of the screen

– Sprite

- When programming the Sprite check you are clicked on the sprite.



Task 2

Getting started with basics - Motion (move) and Sound

- Start moving the sprit
- Add sound to the sprit
- Get the sprit to start a dance (move)



Motion



Looks



Sound

Task 2

- Experiment with step size
- Experiment with sounds
- Experiment with dance steps

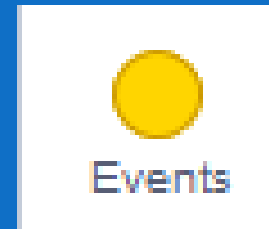
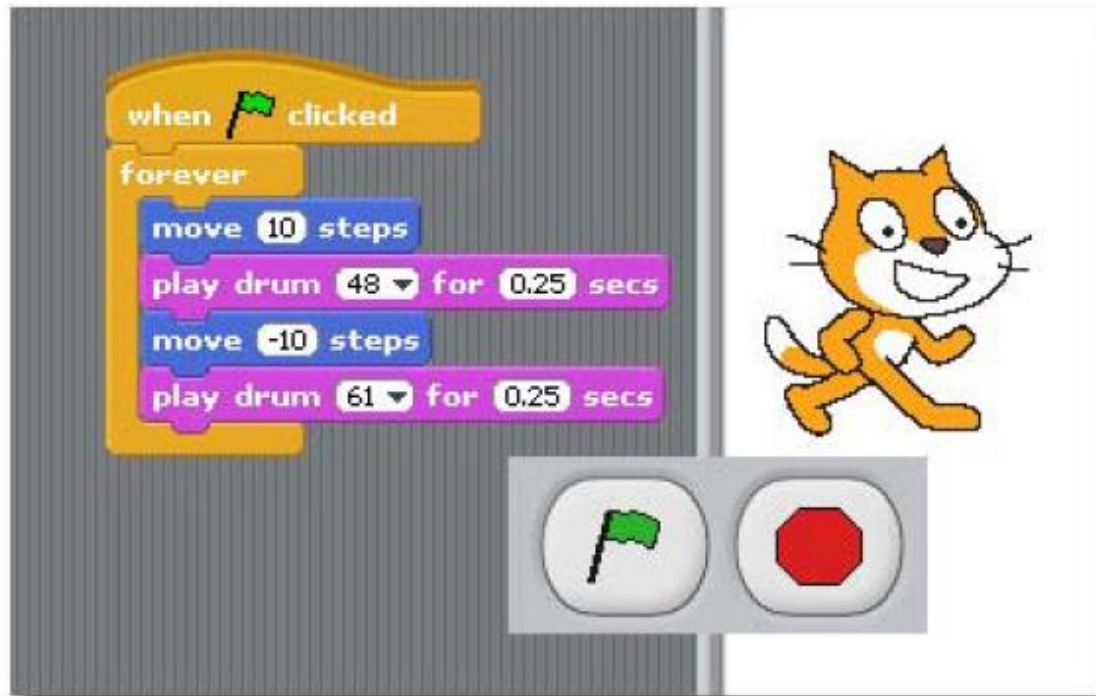


Task 3

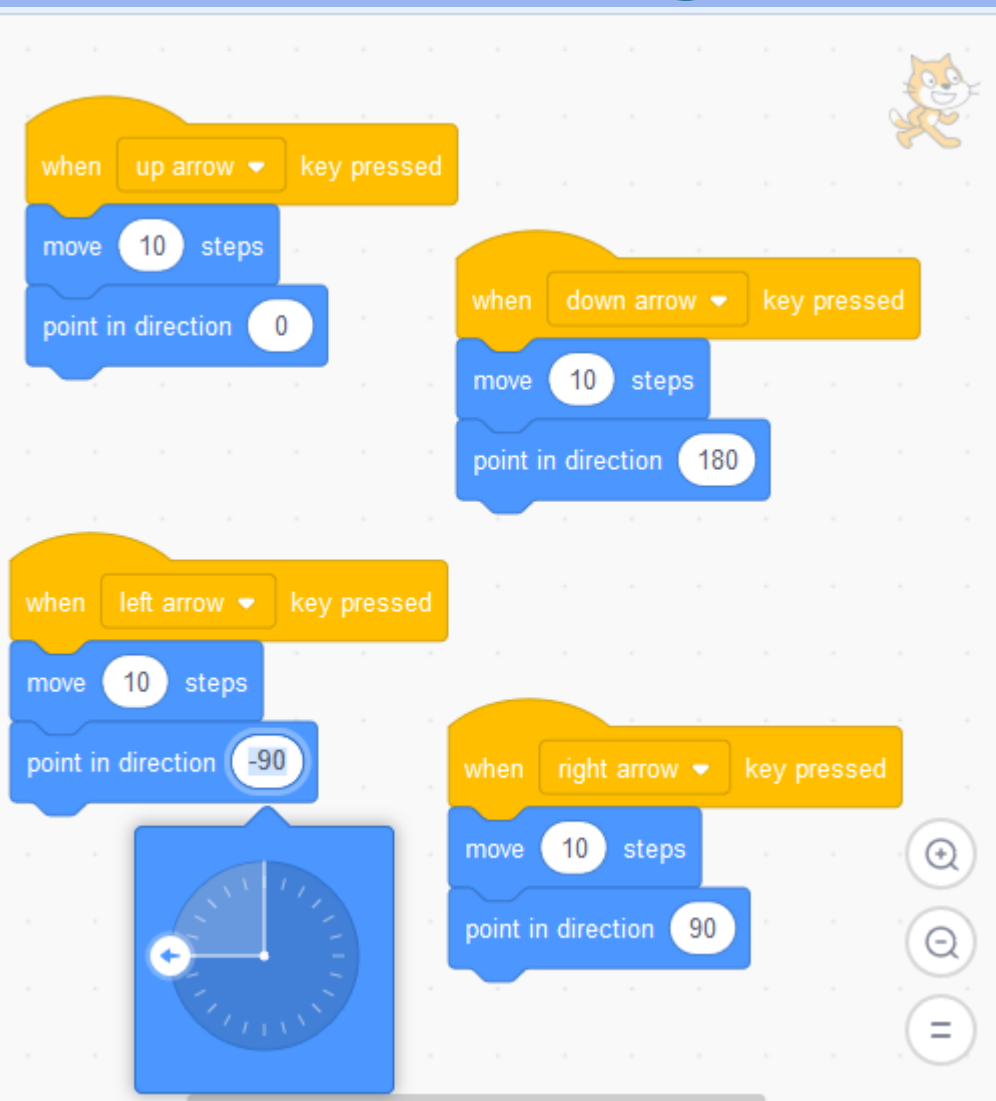
Repeating Actions - Loop

- Make a movement repeat again and again
- Add the green flag to start the game
- Forever loop – put your code into the forever code block

Task 3



Task 4 - Assign movement to keys



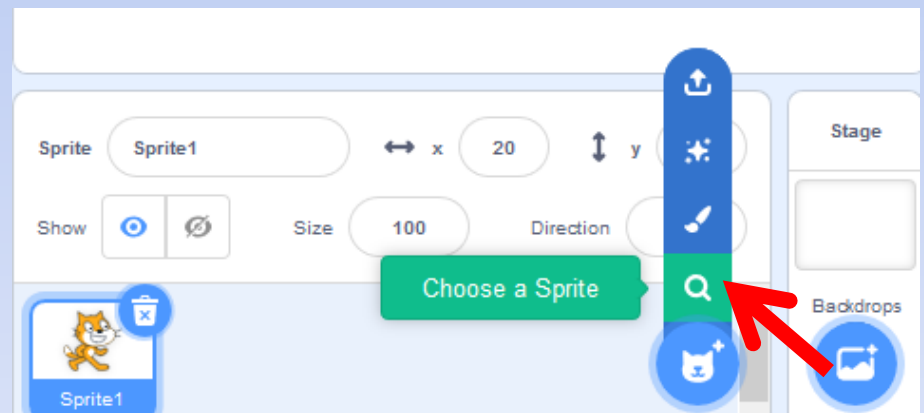
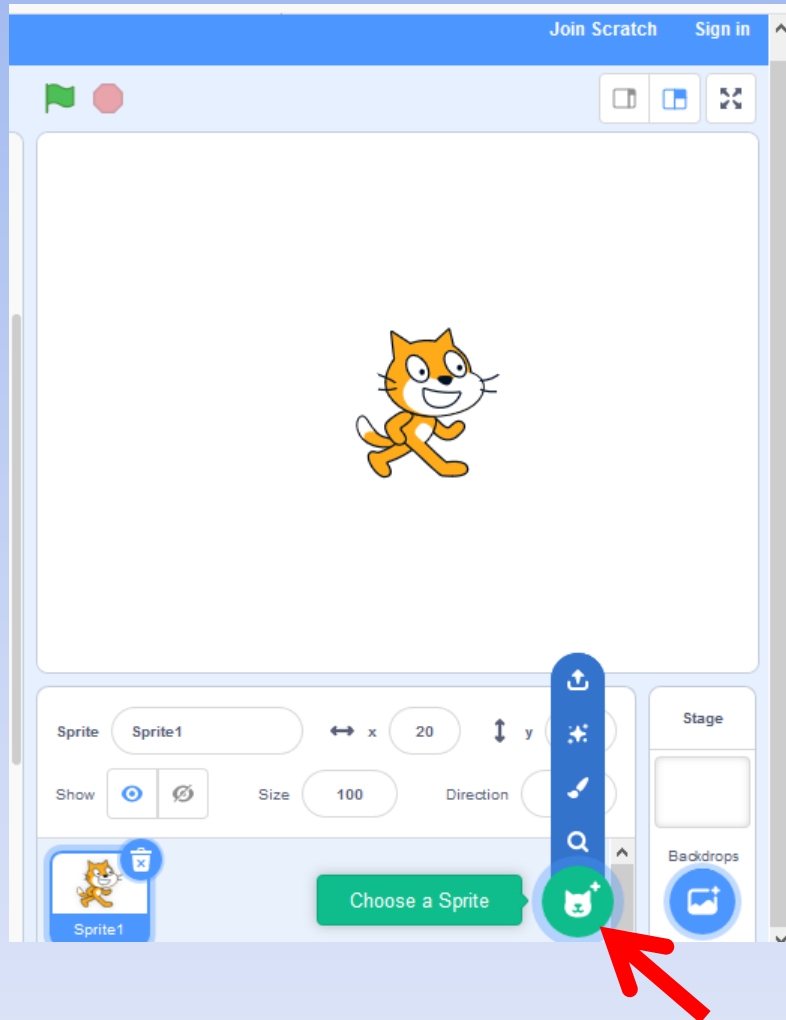
- Code will move your Sprite up, down, left and right when you use the arrow keys on your keyboard.

Scratch – Task 5

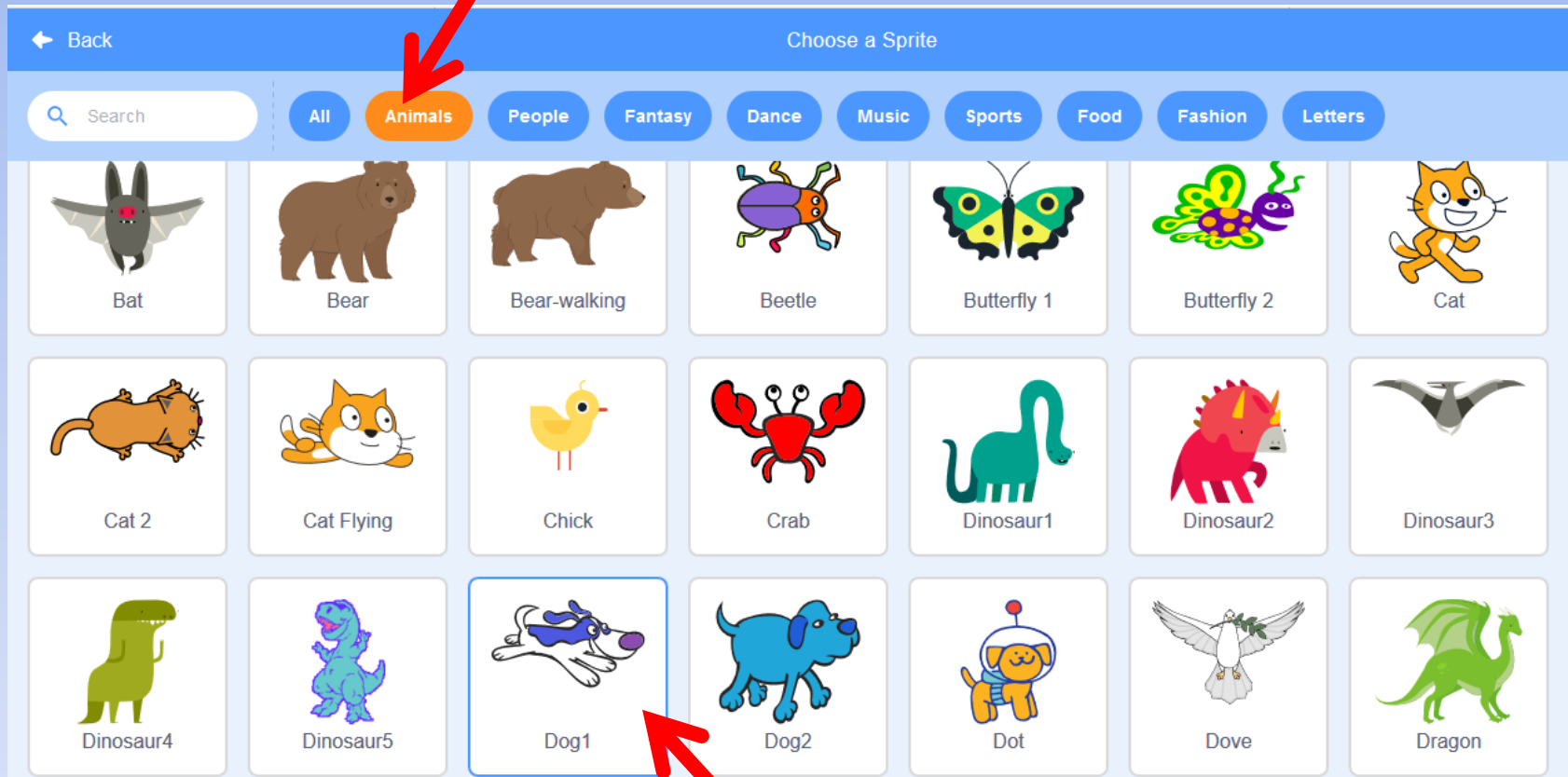
Create a simple chase and catch game.

- Be able to add sprites
- Be able to control 1 sprite
- Be able to make the sprite make a sound
- Be able to add a background

Task 5 - Add a new, second Sprite



Add a new, second Sprite



Cat and Dog Game – Task 5

when up arrow key pressed

move 10 steps

point in direction 0

when down arrow key pressed

move 10 steps

point in direction 180

when right arrow key pressed

move 10 steps

point in direction 90

when left arrow key pressed

move 10 steps

point in direction -90

when clicked

forever if touching Sprite2 ?

say Ouch for 2 secs

play sound meow



Events



Motion



Sensing



Looks

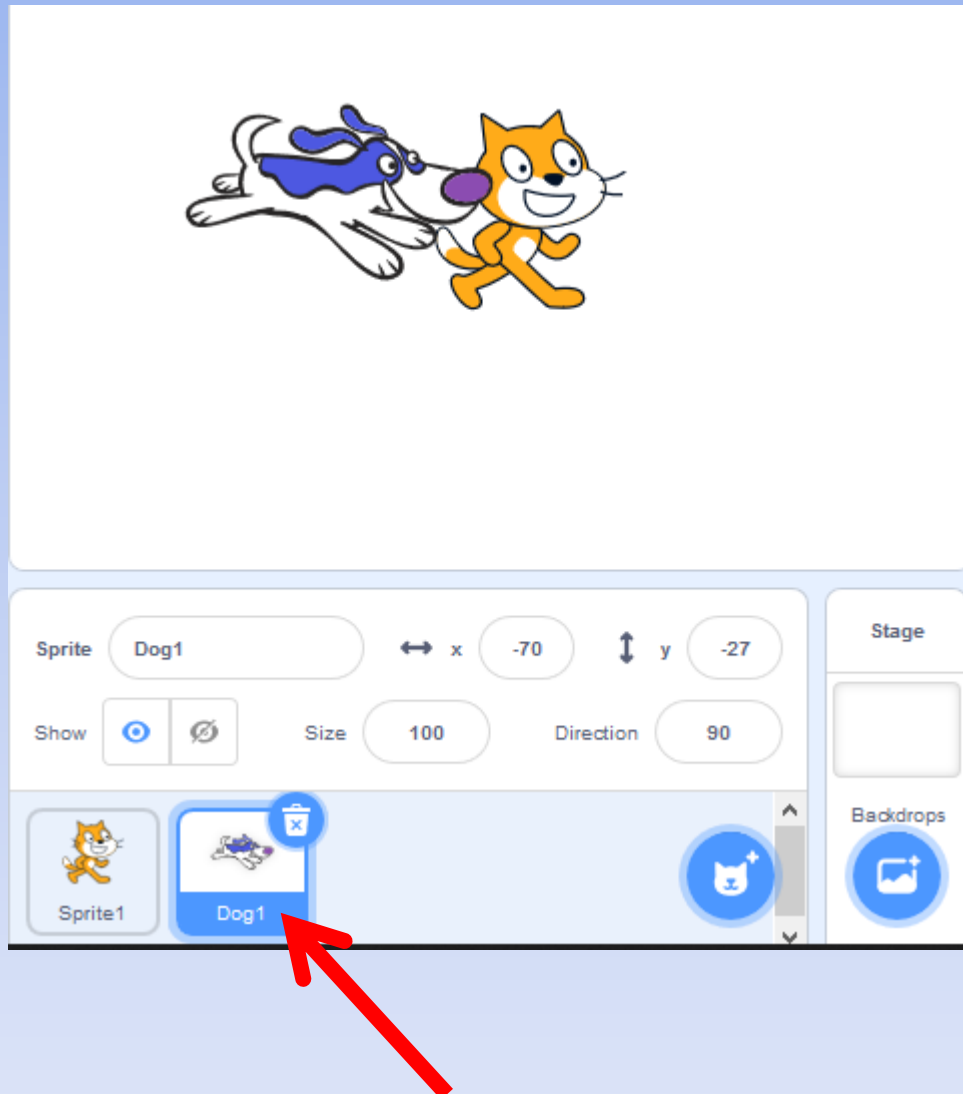


Sound

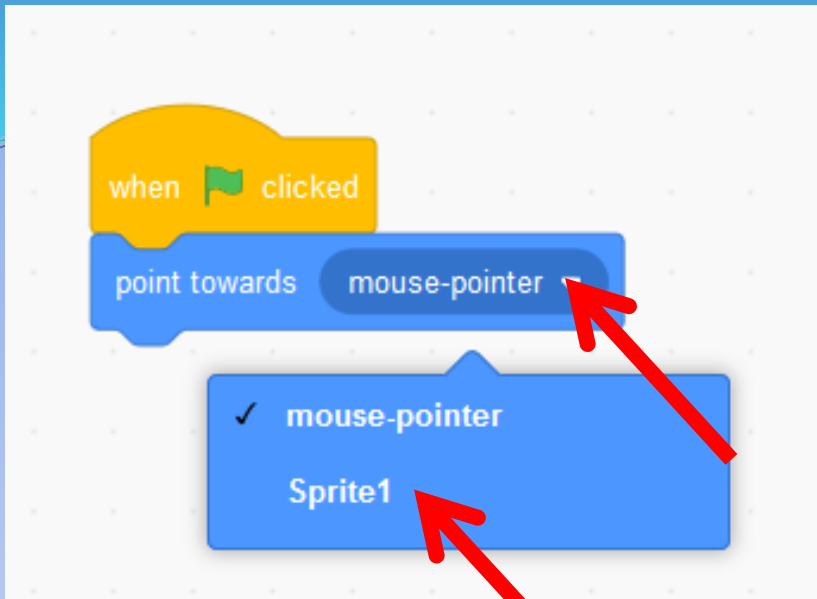
Check you are clicked onto the correct sprite before coding the programme

This code is for the cat – Sprite 1

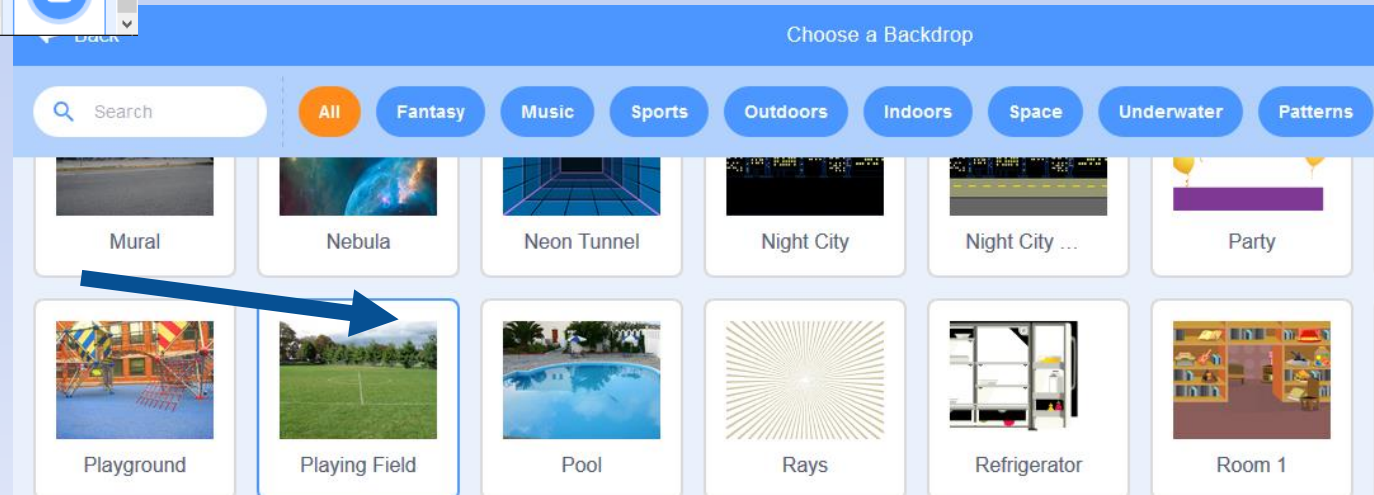
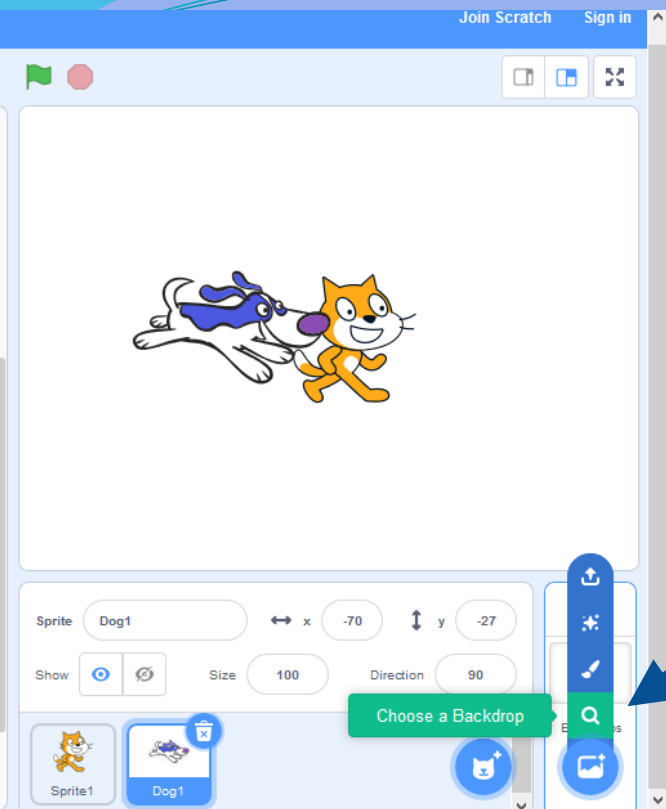
Code the dog – Sprite 2



- This code makes the dog forever chase the cat, until it catches the cat.



Task 6 - Add backdrop



Animate a Name

Task 7

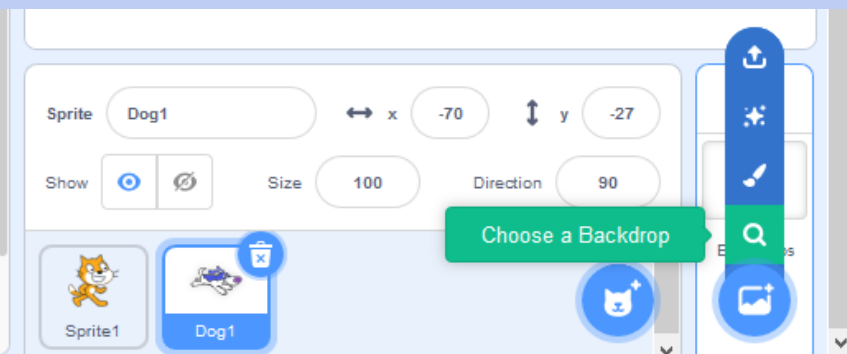
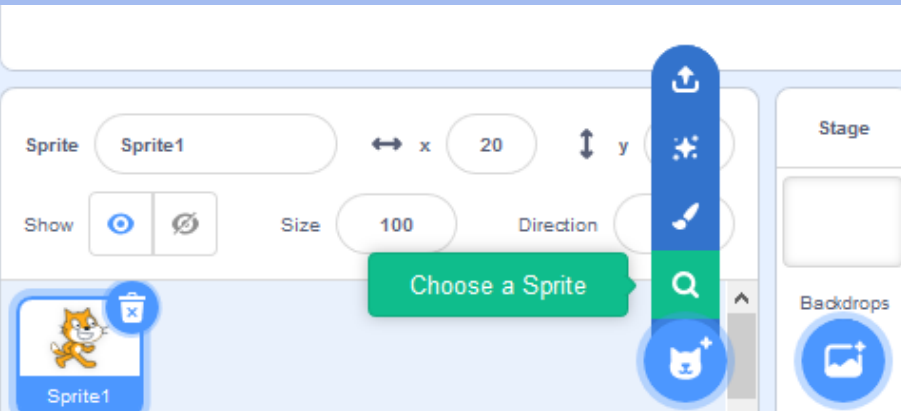
- Color Clicker
- Spin
- Play a Sound
- Dancing Letter
- Change Size
- Press a Key
- Glide Around



Animate a Name

Animate a Name

Task 7



Color Clicker

scratch.mit.edu

GET READY

Choose a letter from the Sprite Library.



Choose a backdrop.



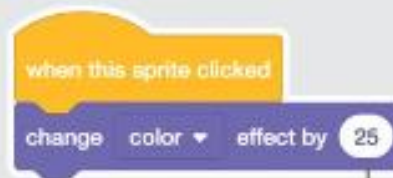
Food

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.

Animate a Name

Task 7

Spin

scratch.mit.edu

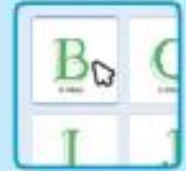
GET READY



Go to the Sprite Library.



Click the Letters category.



Choose a letter sprite.

ADD THIS CODE



Try different numbers.

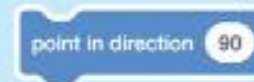
TRY IT

Click your letter.



TIP

Click this block to reset the sprite's direction.



Animate a Name

Task 7

Play a Sound

scratch.mit.edu

GET READY



Go to the Sprite Library.



Click the Letters category.



Choose a letter sprite.



Choose a backdrop.



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.



Animate a Name

Task 7

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.



Animate a Name

Task 7

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.



Animate a Name

Task 7

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!

Animate a Name

Task 7

Glide Around

scratch.mit.edu

GET READY



Choose a backdrop.



Choose a letter from the Sprite Library.



ADD THIS CODE

when this sprite clicked

glide 1 secs to x: 10 y: 100
glide 1 secs to x: 40 y: -130
glide 1 secs to x: 10 y: 100

Try different numbers.

TRY IT

Click your letter to start.



TIP



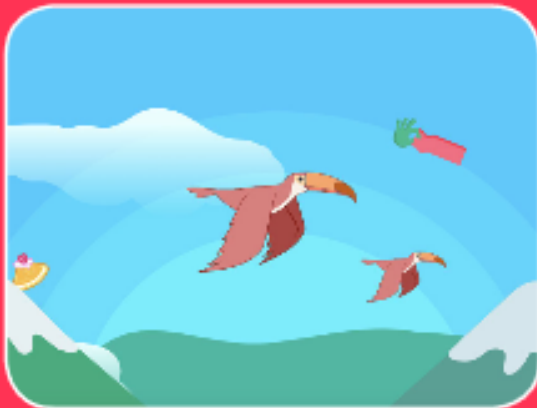
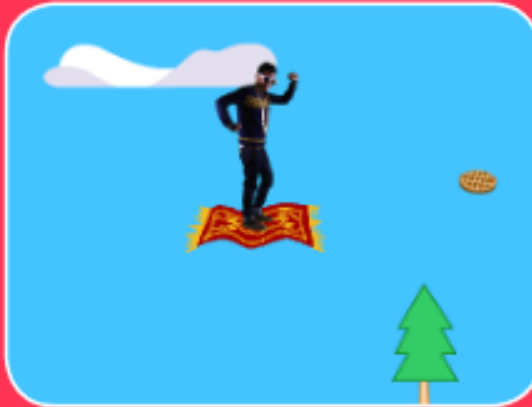
When you move a sprite, you can see the numbers for x and y update.

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

Make it Fly

Task 8

1. Choose a Character
2. Start Flying
3. Switch Looks
4. Make it Interactive
5. Floating Clouds
6. Flying Hearts
7. Collect Points



Choose any character and make it fly!

Make it Fly

Task 8

Choose a Character

scratch.mit.edu

GET READY



Choose a backdrop.



Choose a sprite from
the **Flying** theme.



ADD THIS CODE



Type what you want
your sprite to say.

TRY IT

Click the green flag to start



Task 8

GET READY



Choose a sprite to fly by, such as Buildings.



ADD THIS CODE

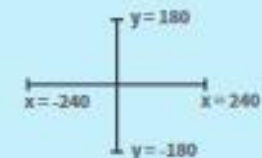


Start from the right end of the stage.

Type a negative number to move left.

TIP

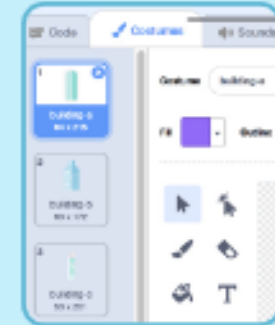
x is the position on the Stage from left to right.



Task 8

GET READY

Click to select the Buildings sprite.

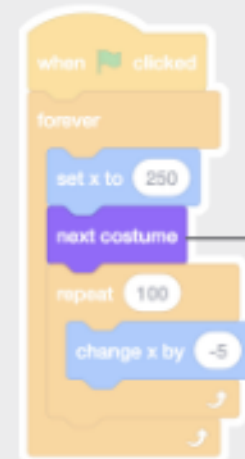


Then, click the Costumes tab to see different costumes.

ADD THIS CODE



Click the **Code** tab.



Add this block to switch costumes.

TRY IT

Click the green flag to start



Task 8

GET READY

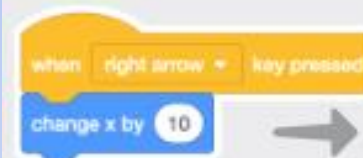
Click to select your flying sprite.



ADD THIS CODE

Change x

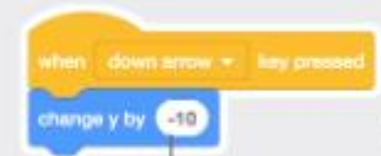
Move your character *side to side*.



Type a minus sign to move left.

Change y

Move your character *up and down*.



Type a minus sign to move down.

TRY IT



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

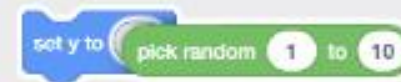
Task 8

GET READY



Choose Clouds from the library.

ADD THIS CODE

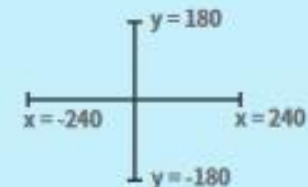


Drag the **pick random** block into the **set y to** block.



TIP

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



Task 8

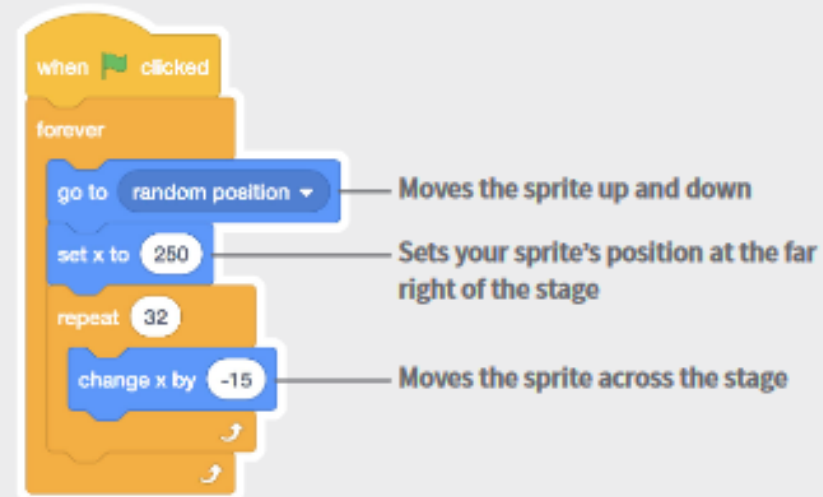
GET READY



Choose a sprite, such as Heart.



ADD THIS CODE



TRY IT

Click the green flag to start



Make it Fly

Collect Points

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Task 8

GET READY

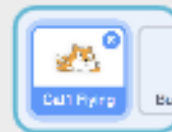
Choose **Variable**

Click the **Make a Variable** button.



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

ADD THIS CODE



Select your flying sprite.



Resets points at the start.

Choose Heart from the menu.

Add a point.

TRY IT

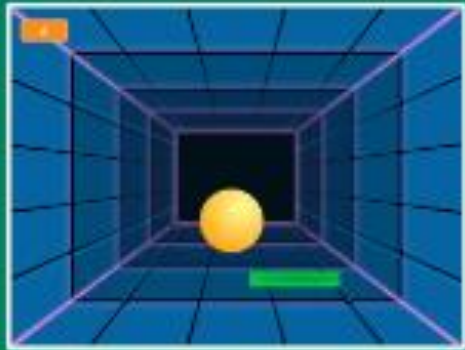
Click the green flag to start



Pong Game

Task 9

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



Make a bouncing ball game and score points to win!

Pong Game

Task 9

Bounce Around

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GET READY



Choose a
backdrop.



Neon Tunnel



Choose a ball.



ADD THIS CODE



ball

when clicked

turn 15 degrees

forever

move 15 steps

if on edge, bounce

Type a larger number
to move faster.

TRY IT

Click the green flag to start.



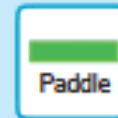
Pong Game

Task 9

Move the Paddle

scratch.mit.edu

GET READY

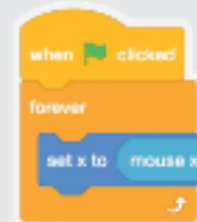
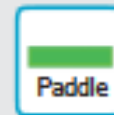


Choose a sprite for hitting the ball, like Paddle.

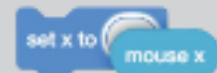


Then, drag your paddle to the bottom of the Stage.

ADD THIS CODE



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



TRY IT

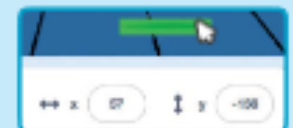
Click the green flag to start.



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.



Pong Game

Task 9

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.



Choose Paddle from the menu.

Insert the pick random block and type in 170 to 190

TRY IT

Click the green flag to start.



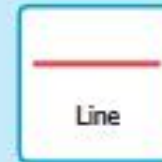
Pong Game

Task 9

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



Set the position of the Line.

Choose Ball from the menu.

TRY IT

Click the green flag to start.



Pong Game

Score Points

scratch.mit.edu

Task 9

GET READY

Choose Variables.

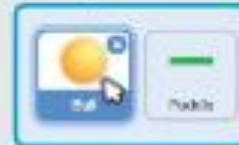
Click the Make a Variable button.



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.

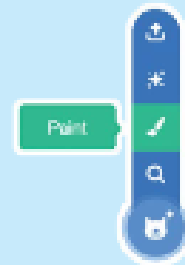
Pong Game

Task 9

Win the Game

scratch.mit.edu

GET READY



Click the Paint icon to make a new sprite.

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



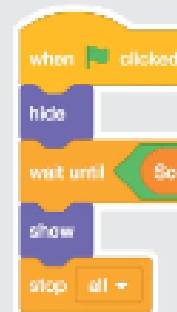
You can change the font color, size, and style.

ADD THIS CODE



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

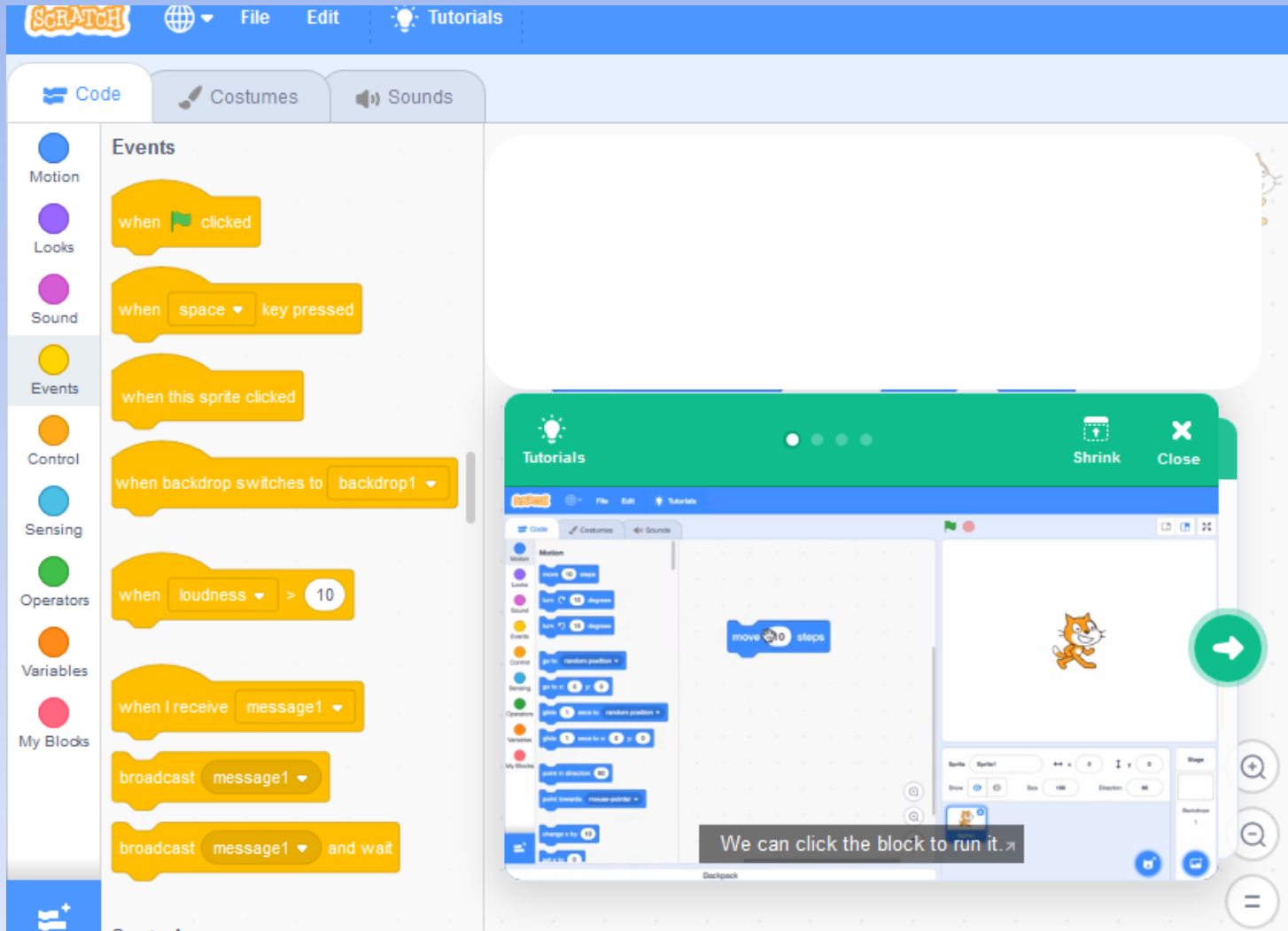
Click the green flag to start.



Play until you score enough points to win!

Task 10 –

Try using Tutorials to watch videos and get ideas to create your own game.



Now use your imagination and create your game – your ideas

- When you have finished your game go onto **Purple Mash** and create a **Game Review** (on your alerts bell) on your own game. Telling everyone what is so good about your Scratch game.

