

The Little Artist Inside Your Computer

Activity Pack: Note to Parents & Teachers

The Activity Pack can be completed by kids as young as 4, if they have a parent working with them.

If they're working on it by themselves, we recommend ages 6 and up.

The packs can be used as a group activity, with 2-4 students working on it in teams, competing to finish first. The pages do not have to be completed in order, so students can work together on the same page or split it up. You can save the last page until they've completed all the puzzles.

Pages 10-12 are more advanced, so if you have teams with mixed ages, you can have the older students work on those pages.

After completing the pack, we recommend reviewing these key concepts:

- **Coding**
- **Bugs**
- **Repeat loop**
- **Decomposition**
- **Pixels**
- **RGB**

Afterwards, your little digital artists can make art online with the Artist at www.code.org.

Permission for use of Code.org characters, names and likenesses is provided by Code.org, a non-profit dedicated to giving every student at every school the opportunity to learn computer science.
See www.code.org.

For more activities to do with your students, go to www.codespeaklabs.com/hourofcode

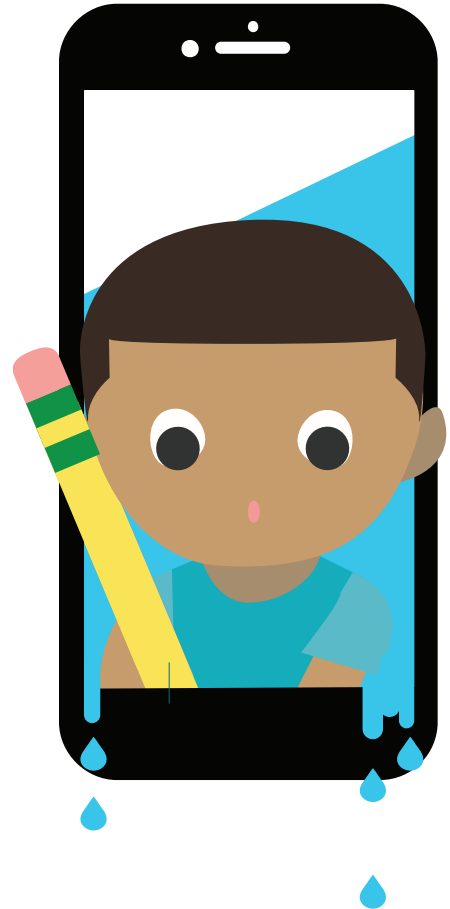
The Little Artist Inside Your Computer

Did you know that there's a little artist who lives inside every computer and smart phone?

I'm the little artist who lives in your parent's phone, and

I need your help!

I got dropped in water and now the images on the screen are all messed up! Can you help me fix the screen saver before your parent notices?



First, write your name inside the rectangle and then cut it out:



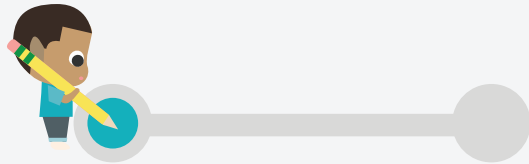
Let's start by teaching you how to draw digital art using computer code.

Coding is telling your computer what to do.

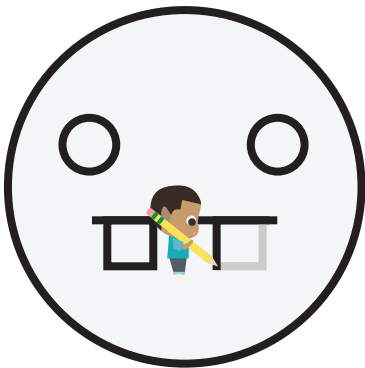
For example, you use the **RIGHT** coding block...



to draw a line that goes from here...

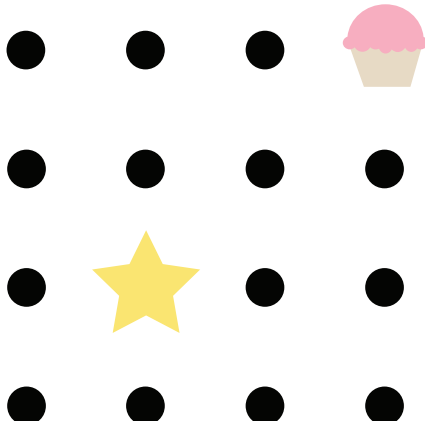


to here.



The face is missing its tooth!

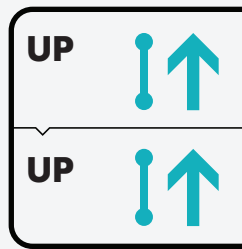
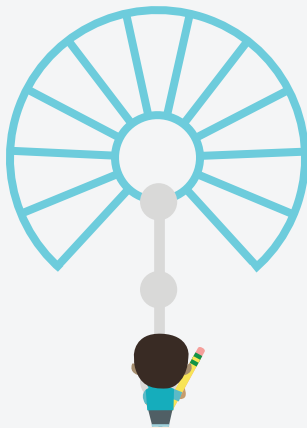
Circle the **TWO** blocks we should use to fix it.



Using only the directions from those same two blocks, can you draw a line that gets you from the **STAR** to the **CUPCAKE**?

How many blocks would you need to use?

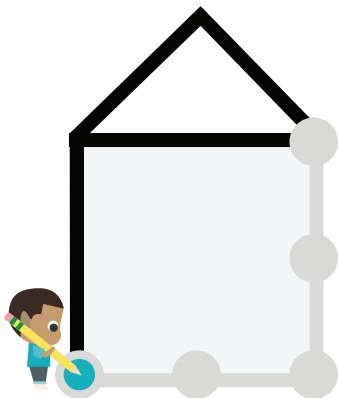
The flower is missing its stem! To fix it, we need to use **TWO** of the **SAME** blocks.



With just a simple line we can make so many things!

What 4 blocks do you need to fix this house?

Draw the arrows in the empty blocks below.



Step 1



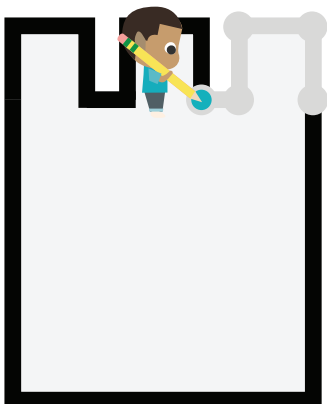
Step 2



Step 3



Step 4



Now what code do you need to complete the castle?



Step 1



Step 2



Step 3



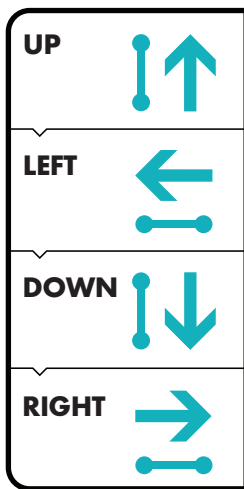
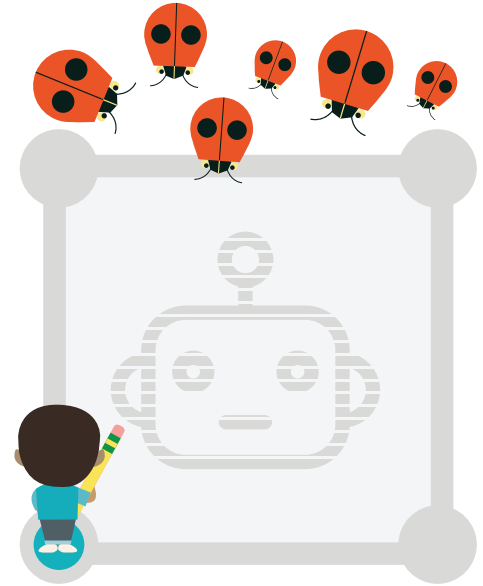
Step 4

ARGH!

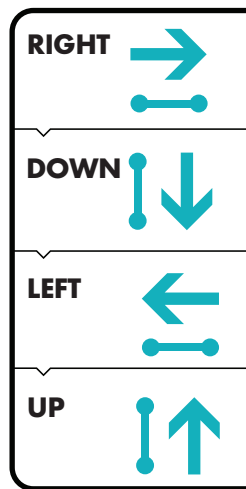
Bugs are attacking!

3 of the 4 sequences of codes below have **BUGS** in them! Bugs are mistakes in code.

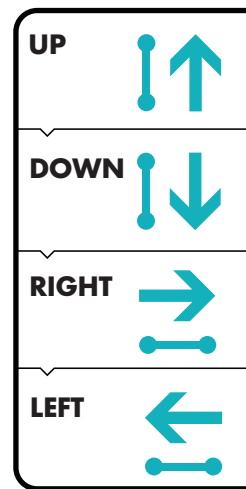
Circle the correct sequence of blocks that completes this square. The correct sequence has **NO** bugs!



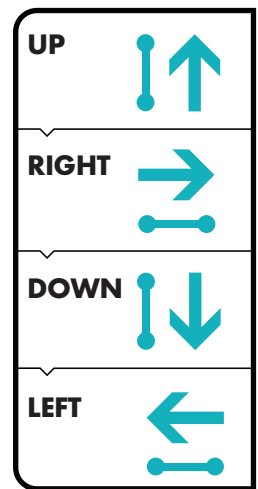
A



B



C

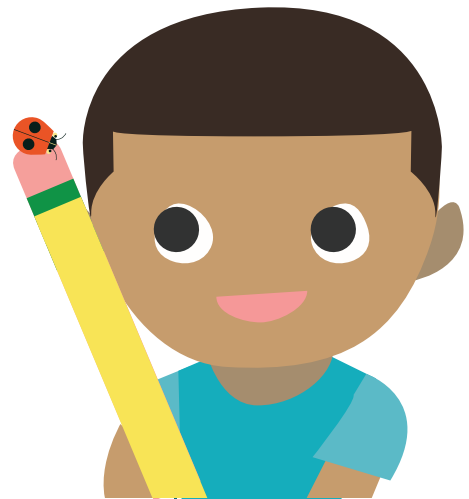


D

A bug is a **m** _____ in the code.

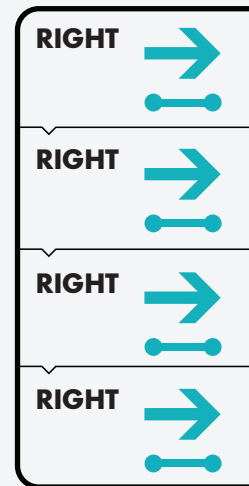


I learn a lot from the bugs I find
but they can be super annoying!

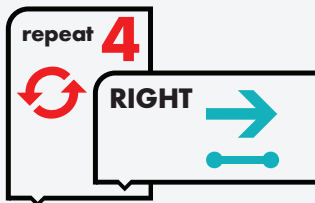


It's time to teach you a shortcut!

To draw this line, we could use the same block 4 times.



Or we could use the special block: a repeat loop. Repeat loops are a great shortcut so we don't need to use as much code.

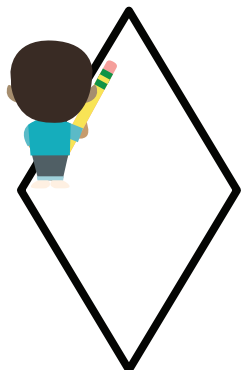


How would I draw this line?



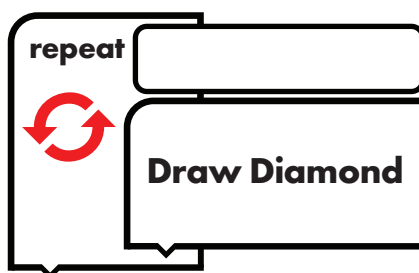
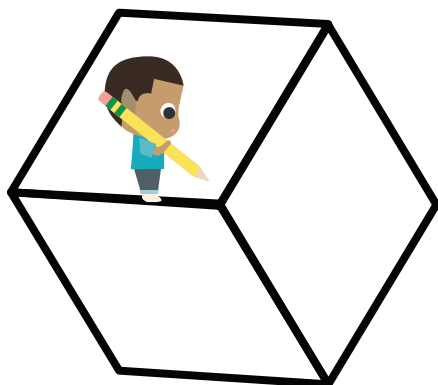
Imagine if we had to move **4,000,000** steps! With a repeat block, we'd still only need 2 blocks.





**Repeat loops make it easy
to turn one diamond...
into many more!**

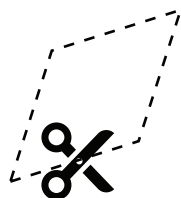
How many diamonds does it take to make
this shape?



← Fill in
your
number.

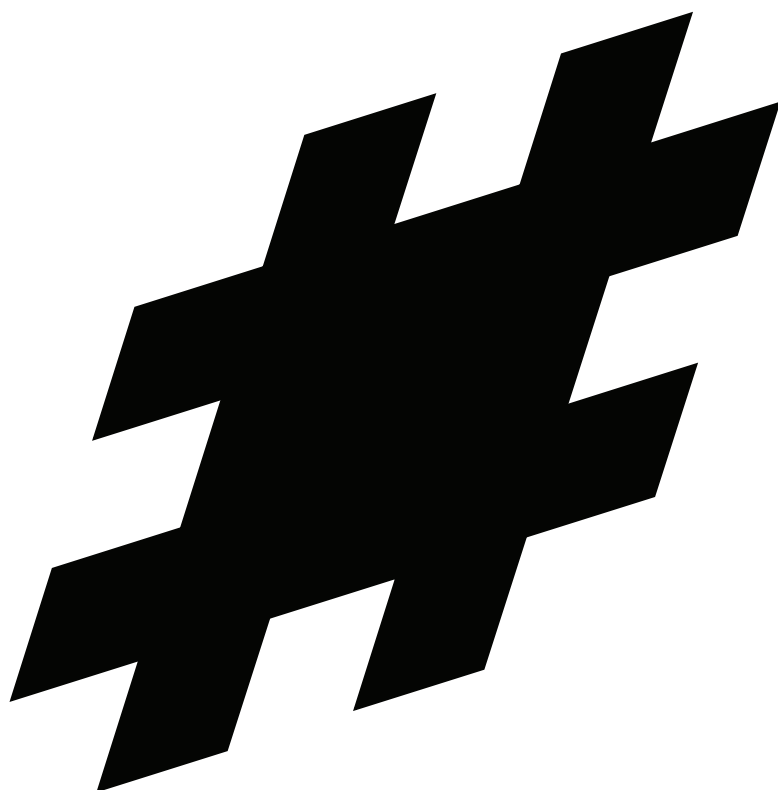
How many diamonds does it take
to fill in this shape?

Hint: You can cut this diamond
out to help you count.



What is this special block called?

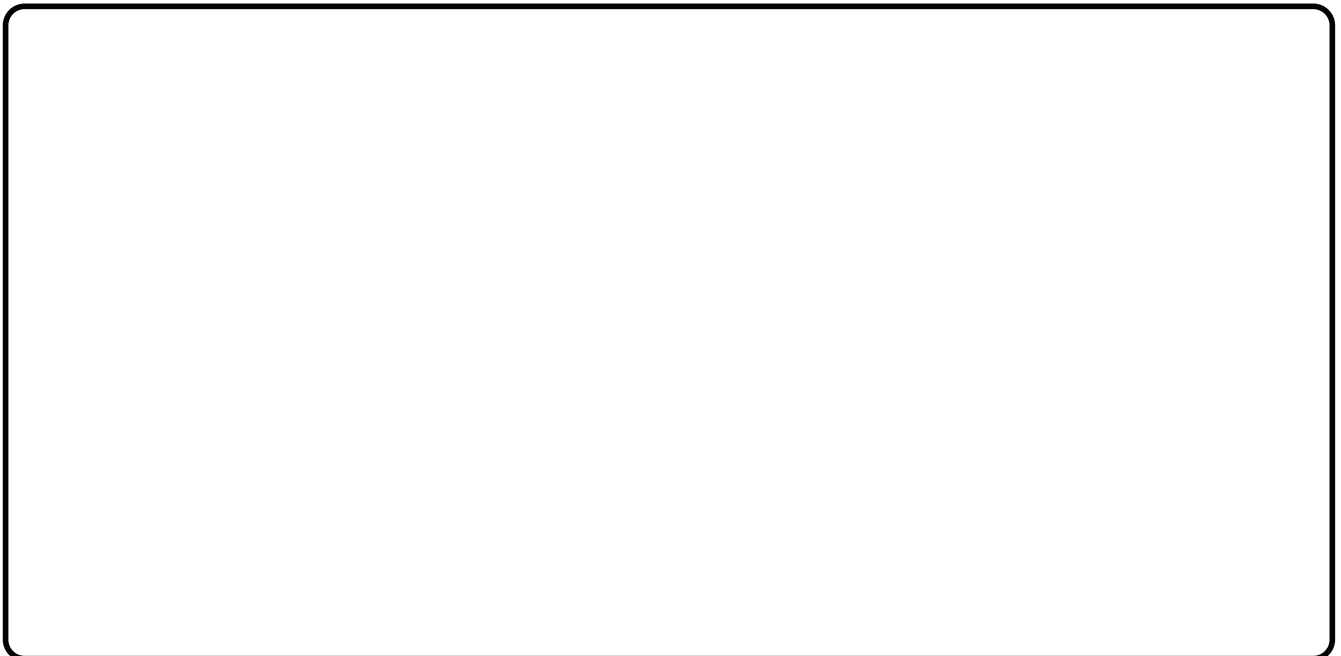
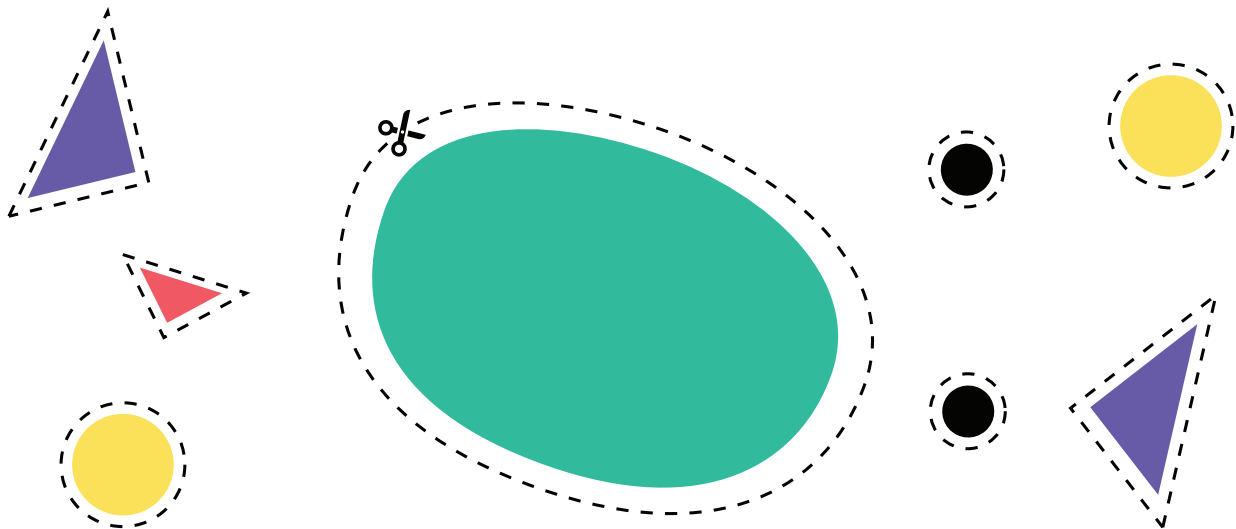
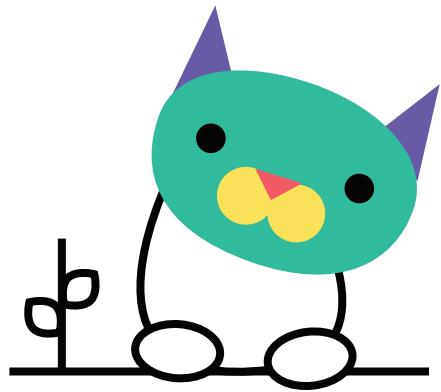
Repeat _ _ _ _



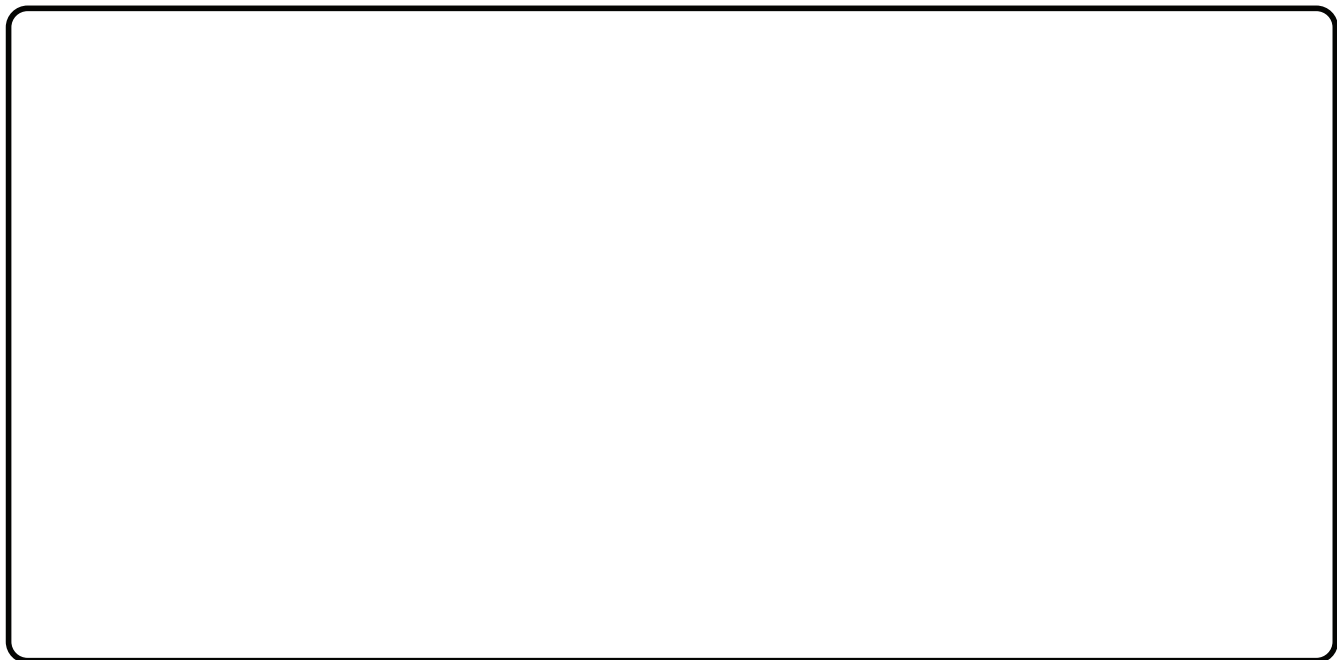
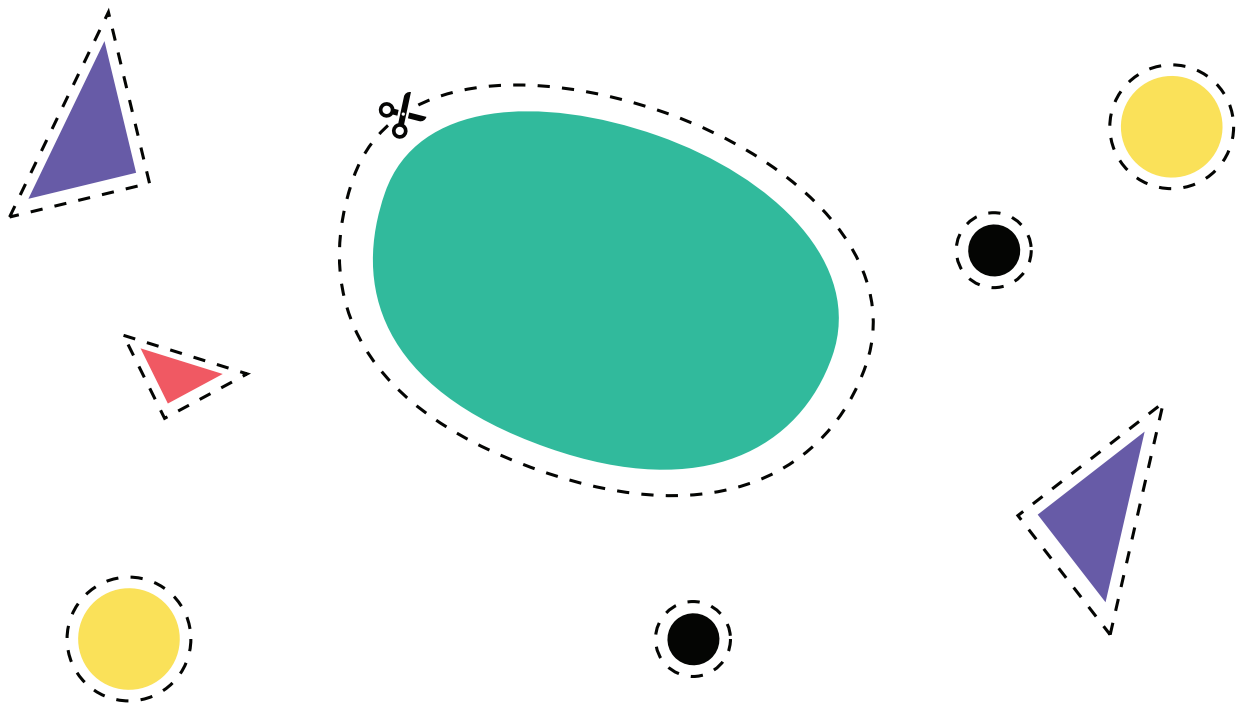
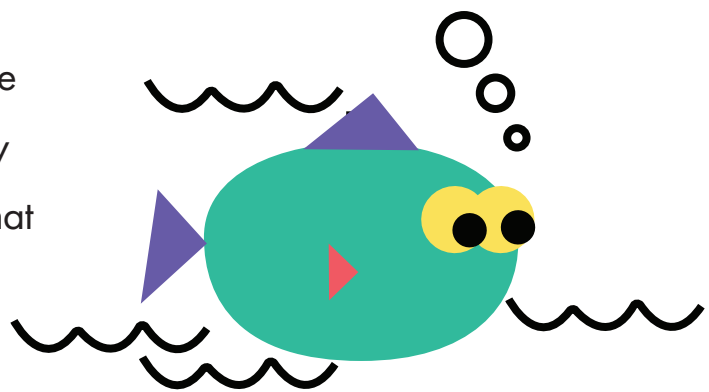
You can do even more with a lot of different shapes!

You can break down the cat I made into these smaller pieces and then make something new (that's what we call **decomposition**). The same building blocks can make many different things.

Cut out these shapes and put them together in the space below to make any animal or design you want!




Now let's do it again — this time, make something new! And you can add any lines or draw any additional shapes that you'd like.




You've written awesome code that gave me instructions on what to draw. Can you be the artist now and follow these instructions?

Draw the hidden letter by filling in the squares according to the steps below.


Key:




Fill in square with color.



Move one square down.



Move one square up.



Move one square right.

Step 1

2

3

4

5

6


7


8


9


10


11





























12


13


14


15


16


17








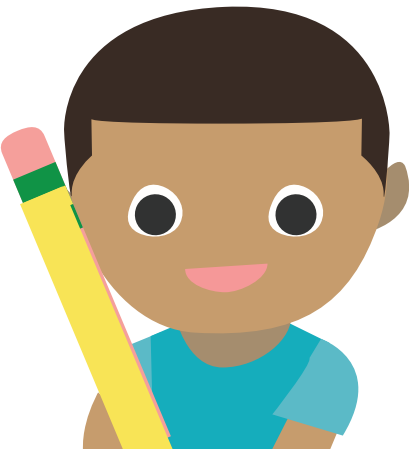






Start			

What is the hidden letter? _____



You're a Digital Artist too now!

If you zoom up really close, you can see that everything I draw is made up of lots of tiny **PIXELS** — little squares of color — that turn into beautiful things when you put them together.



Color in the correct pixels to reveal the secret image!

Color in the square that matches with the letter and number.

C3 and **B4** have already been filled in.

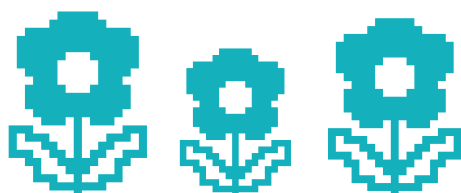
	A	B	C	D	E	F	G	H	I
1									
2									
3									
4									
5									
6									
7									
8									
9									

Finish the image by coloring in these squares:

**D4, E3, F4, F5,
E6, D7, C6, B5**

What is the secret image?

H _ _ _ _



Let's talk about COLOR!

You can tell a computer what color you want by using a **RGB** value. This tells the computer how much **RED**, **GREEN**, and **BLUE** light to use together to make the color you want.

RGB (255, 0, 0) is this color



This shows
how much
RED there is.

This shows
how much
GREEN.

This shows
how much
BLUE.

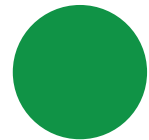
Using RGB computers can make **MILLIONS** of colors!

RGB (191, 0, 255) is this color



It has **RED** and **BLUE** in it but no **GREEN**
(that's why the middle number is 0).

The top of the screen saver is supposed to be this color (all GREEN).



Circle the correct RGB value!

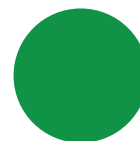
RGB (0, 255, 0)

RGB (255, 0, 0)

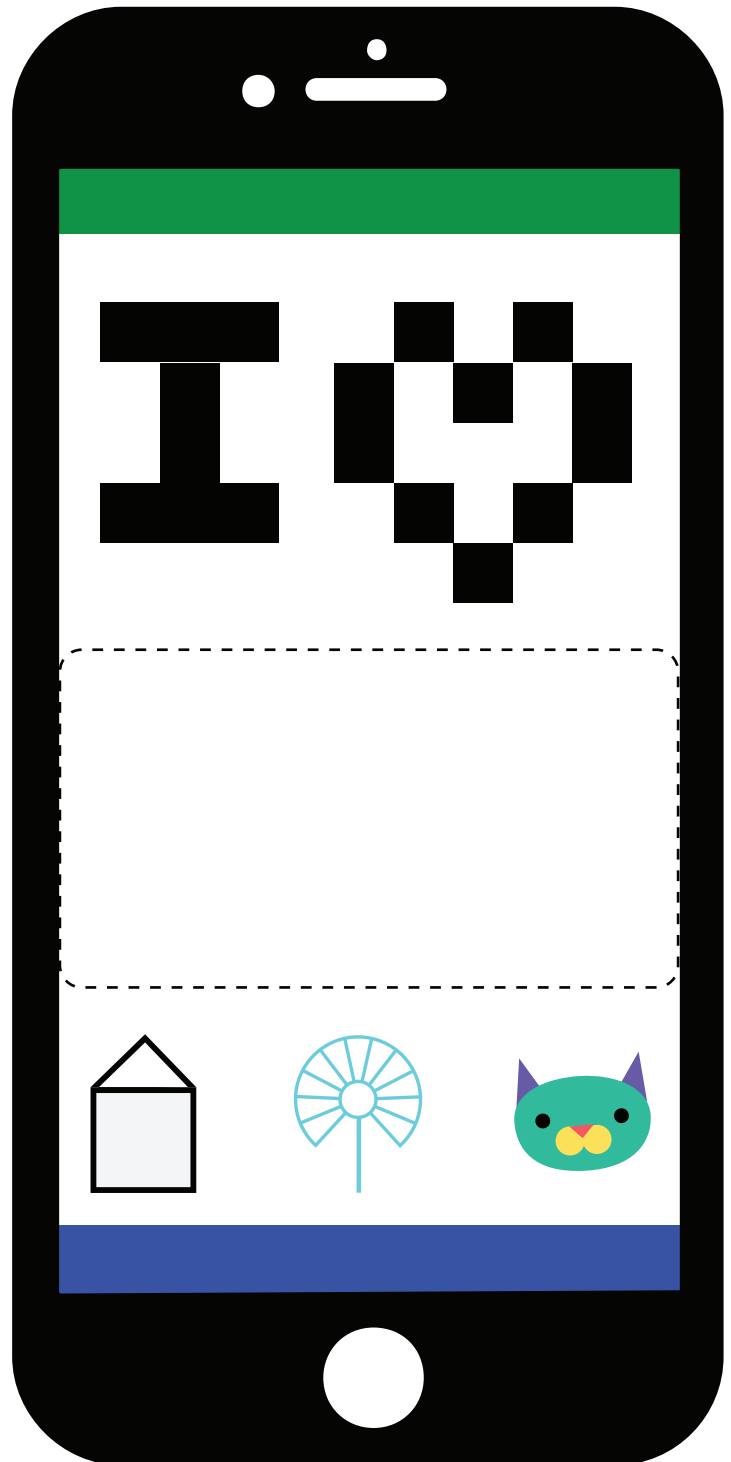
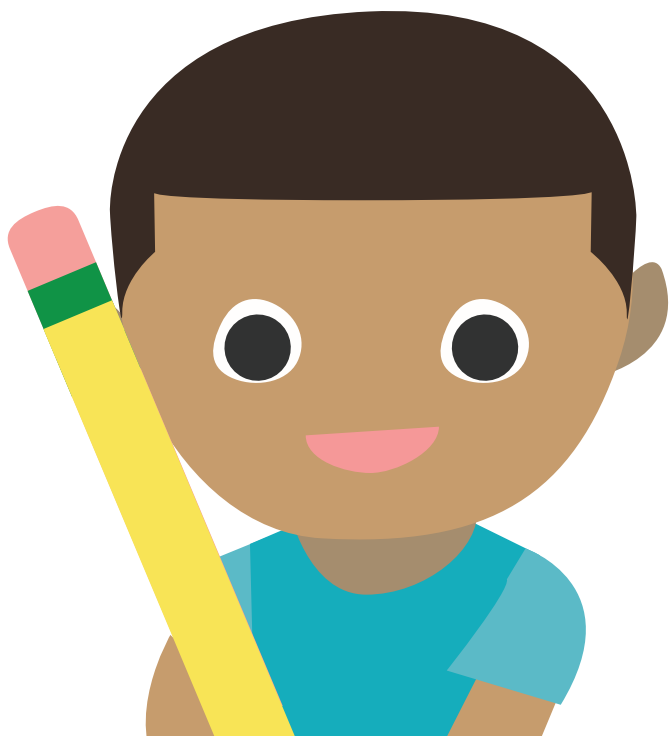
RGB (0, 0, 255)

The bottom of the screen saver is supposed to go with this RGB value: **RGB (0, 0, 255)**

Circle the correct color!



The screen saver is just missing one piece! Can you find it and glue it on?



Certificate of Achievement



CodeSpeak Labs

Awarded to

*For being a Digital Artist and
saving the day!*



You Did It!