Geometry from Scratch

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All presentation material and resources found here: bit.ly/geometryfromscratch

Presentation Key

Teacher POV

Student POV

Black background

White background

What is Scratch

(while I'm talking, please go to *scratch.mit.edu* on a computer, or and click on the try it out button.
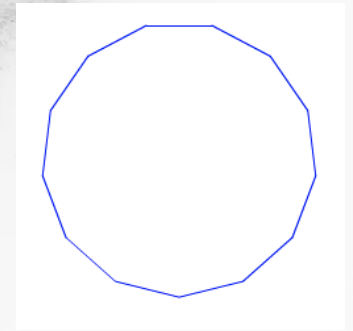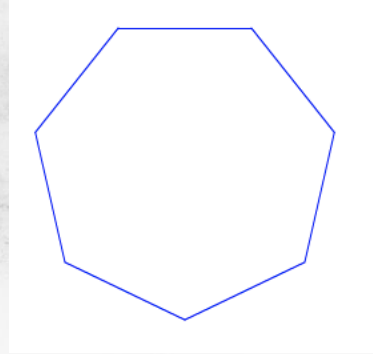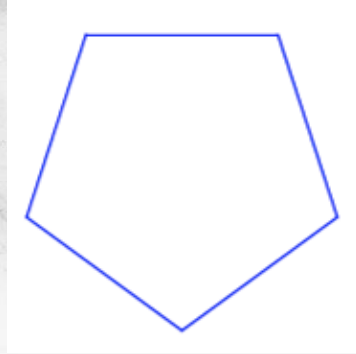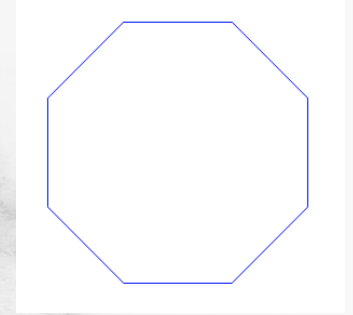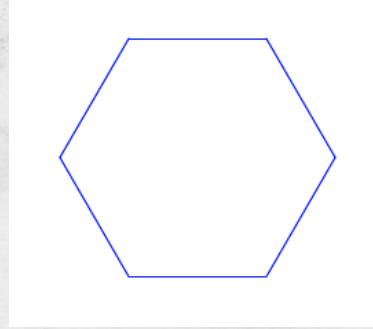If you don't have working internet/computer, please find a partner who does!)
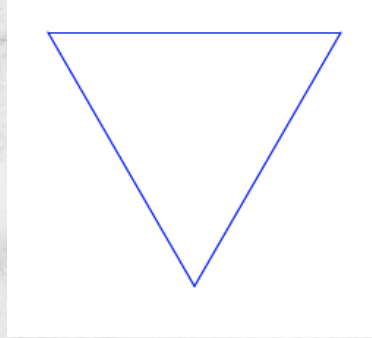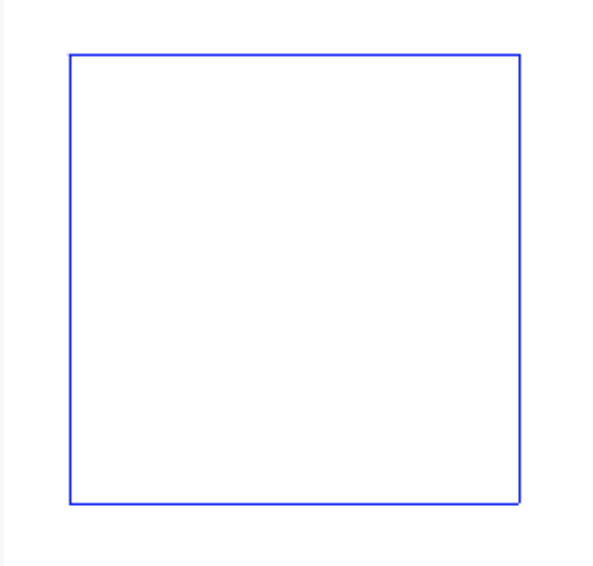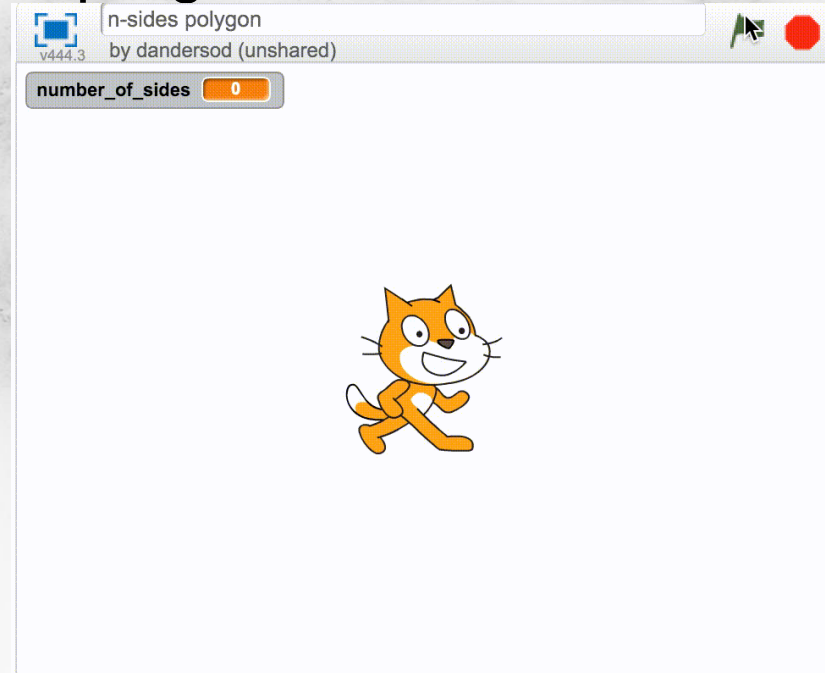
What is Scratch

What tools do I have?

Challenge 1A: Draw these

Challenge 1B: n-gon

Can you make a program that will draw a n-gon?

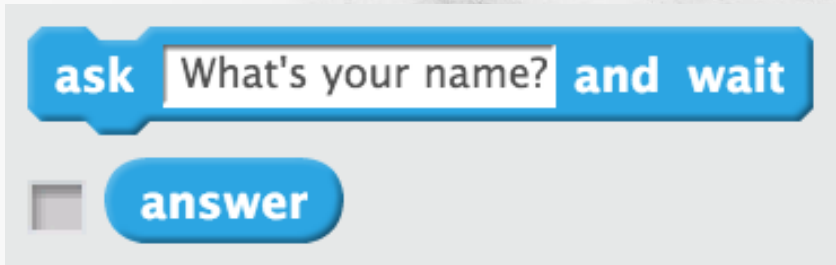# New tricks - Ask user and variables

Variables:
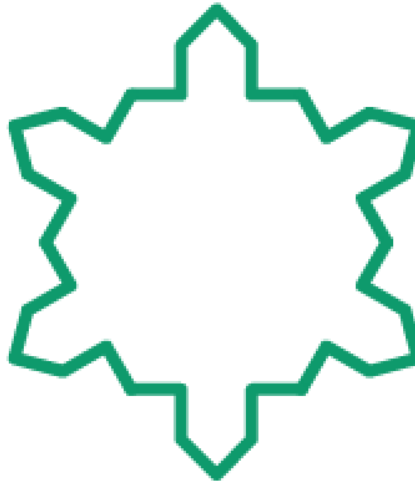

Make a Variable

☑ n

set [n ▼] to [0]

Combined:

when ⚑ clicked
ask [How many sides?] and wait
set [n ▼] to (answer)

Ask User:

ask [What's your name?] and wait

☐ answer

Challenge 1C: Art

Make something like this with one click.
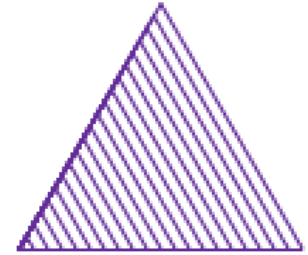
Challenge 1C: Art

Make something like
this with one click.

Challenge 1C: Art

Make something like
this with one click.

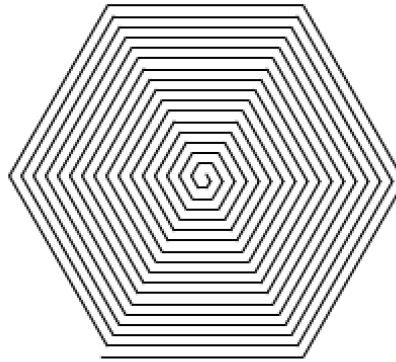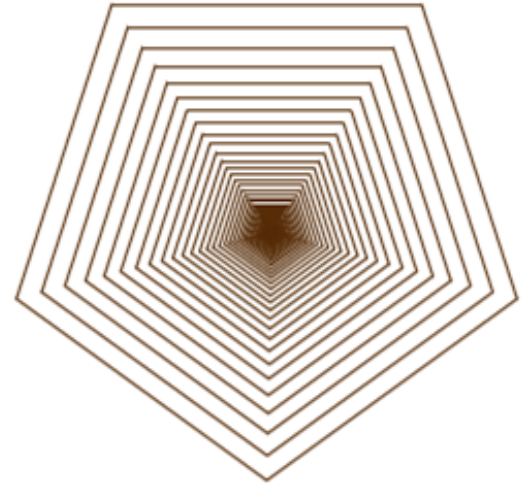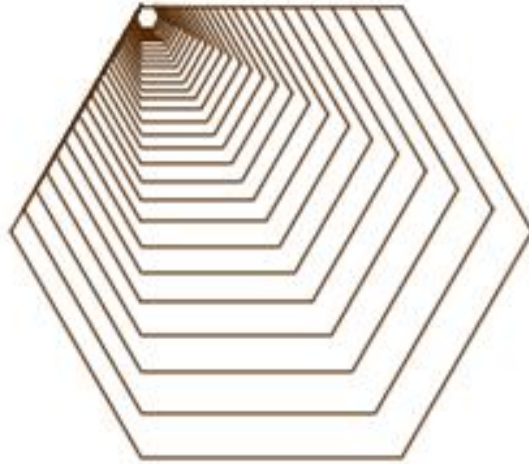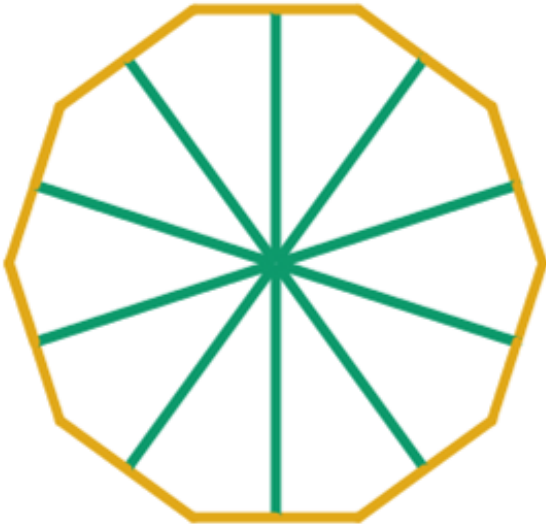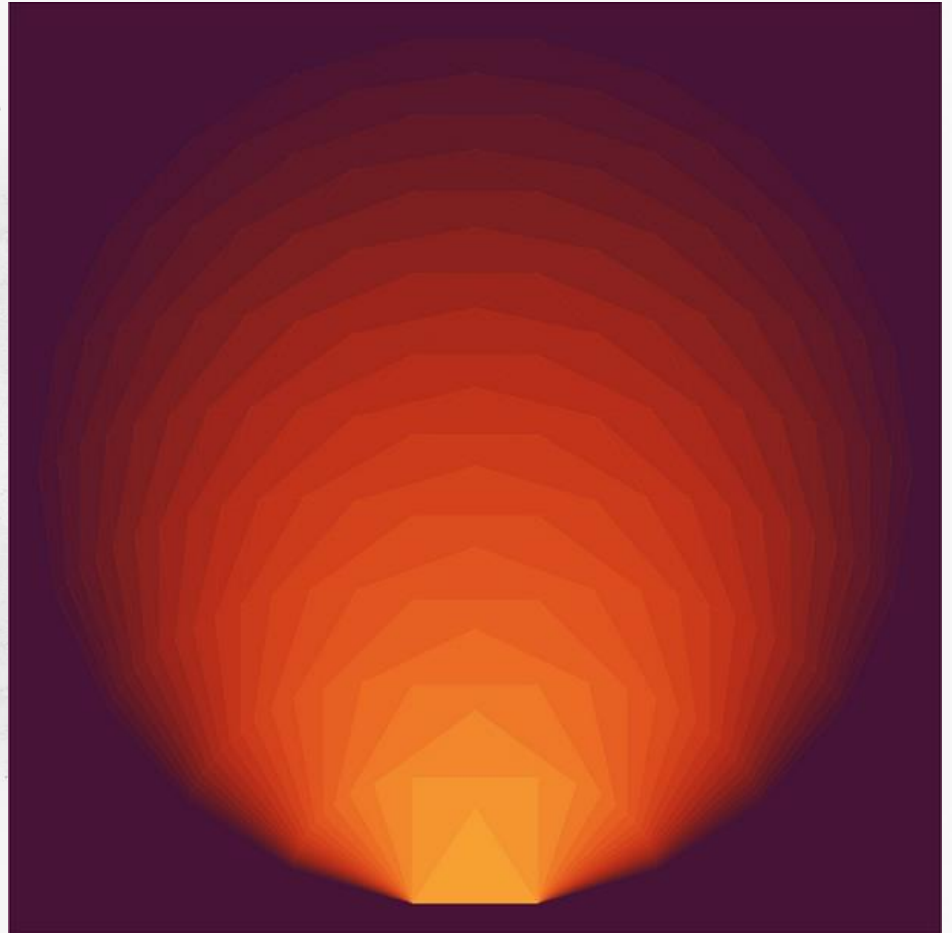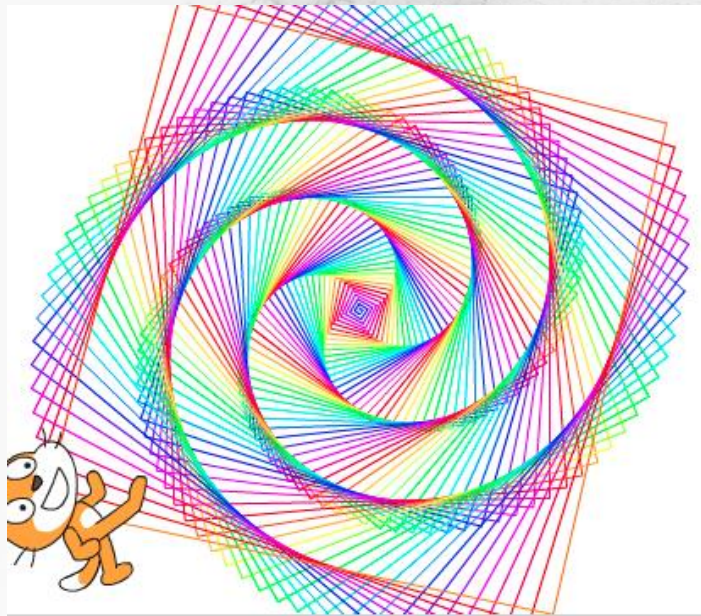# **Challenge 1D: Polystar**

What angles are required to make these images?
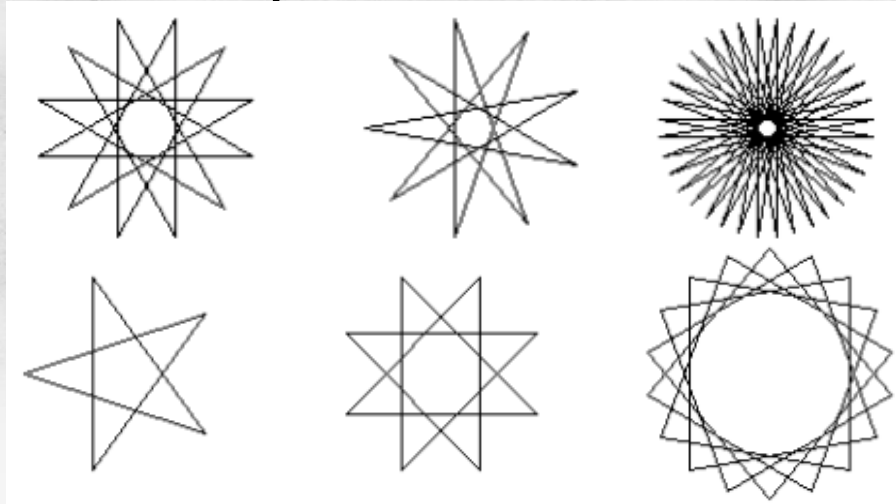
Images from Polystar:<u>scratched.gse.harvard.edu/resources/polystar</u>

Teacher Time - Task 1

What math or computer programming topics were addressed with these activities?

Activity Feedback/Thoughts

Next Up

Save your previous sketch, and make a new sketch. Run the following:
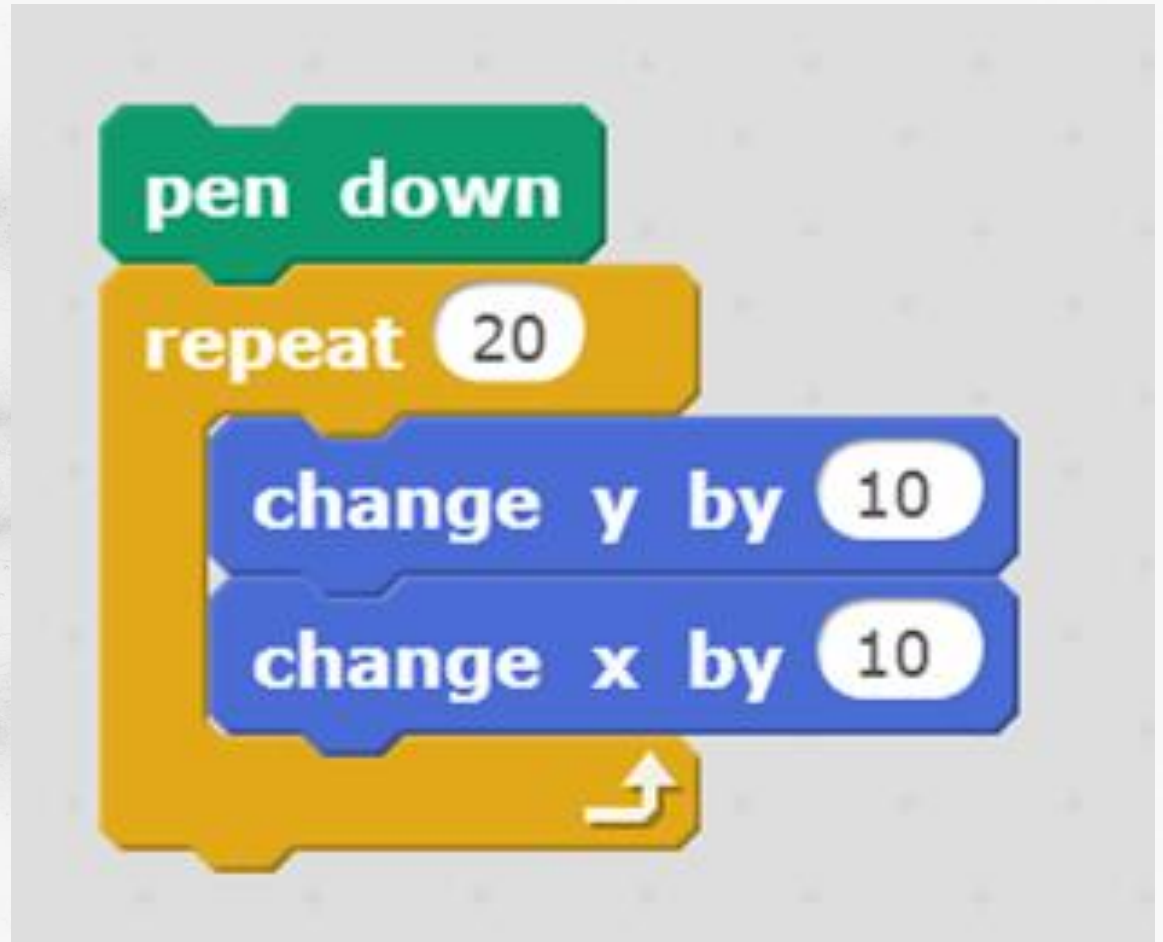
Challenge 2A

If you start at the origin, how can you get the cat to move the following ways:

What numbers do you have to change? How?
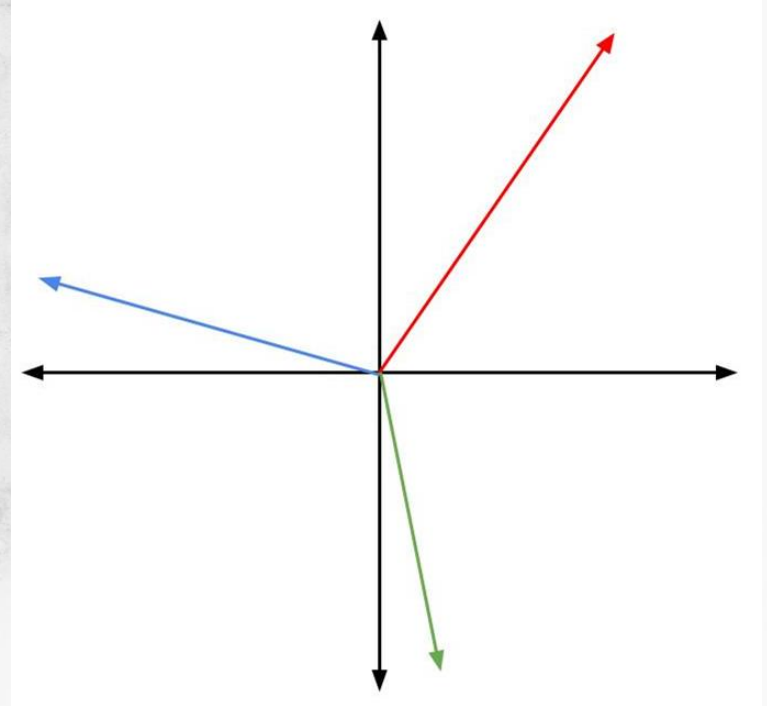
Challenge 2A

By using only these two commands and a loop, can you replicate the following?

Challenge 2B

Can you get some right angles between the lines?
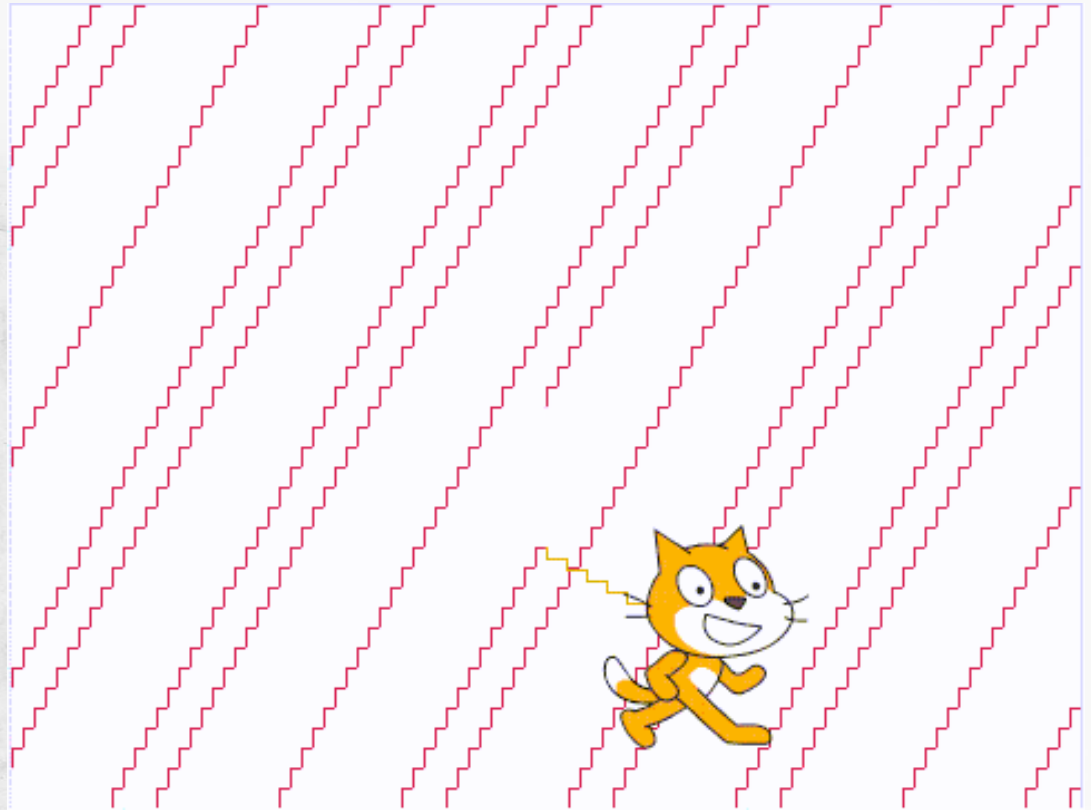
Challenge 2C

How can you get the cat to collide with the princess?

from Dawn DuPriest (@DuPriestMath):
codinginmathclass.wordpress.com/2015/05/22/pre-teaching-slope-with-scratch/

Teacher Time - Task 2

What math or computer programming topics were addressed with these activities?

Feedback/Thoughts
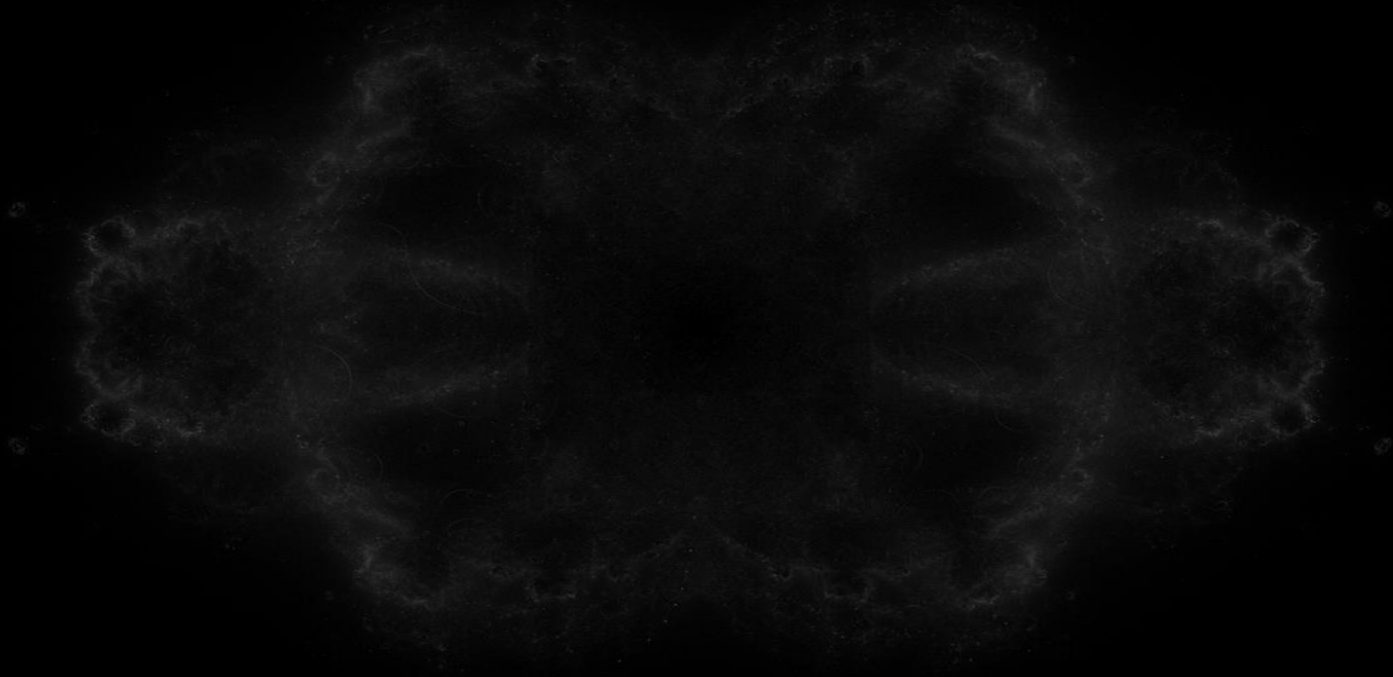
Challenge 3: Space Travel

Space Travel 3A

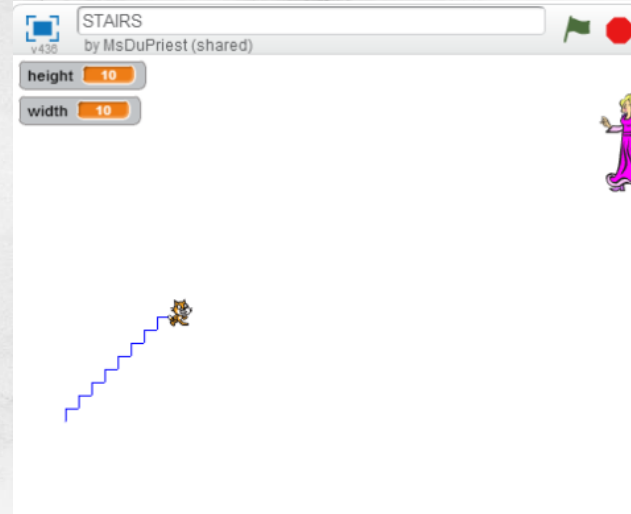Set the cat at the position (-140,-100), and a sun at (20,80). *With **one** glide_to(x,y) command,* can you move directly towards the sun. Oh yea, make sure you don't burn up, let's stay exactly 100 units away from the sun.
bit.ly/CatAndSun

Space Travel 3B

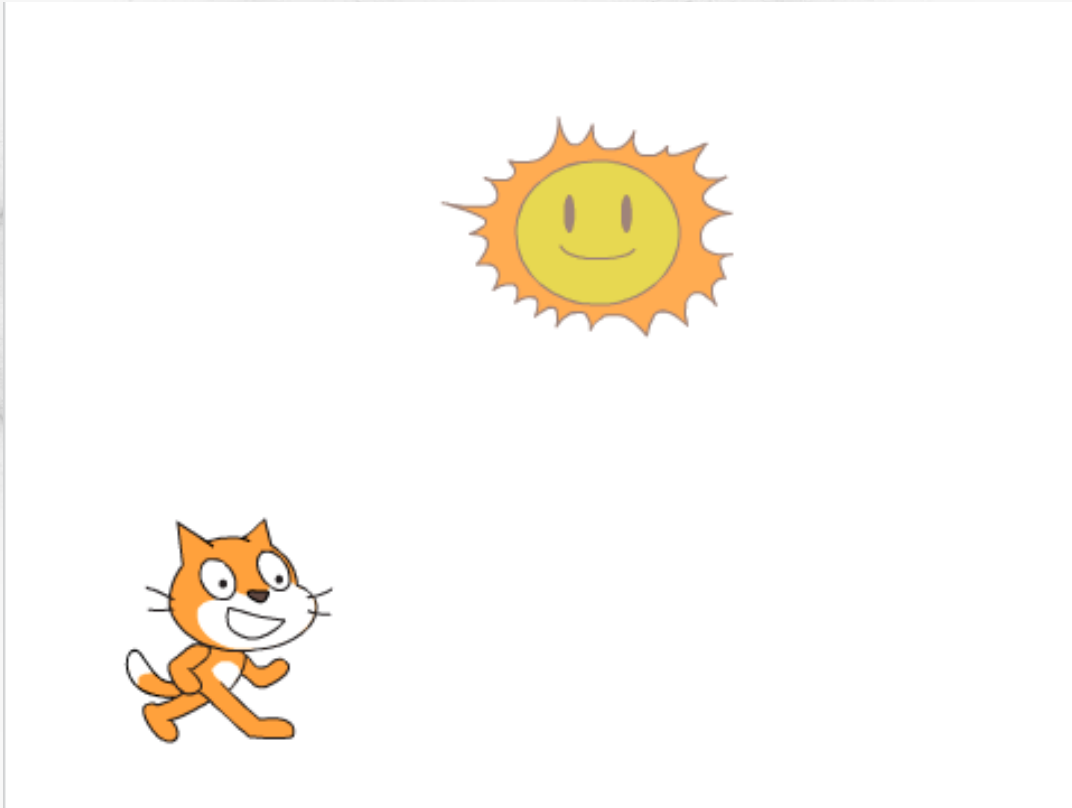Set the cat at ANY position, and a sun at ANY position. *With **one** glide_to(x,y) command*, can you move directly towards the sun. Make sure you don't end up in the sun, let's stay exactly 100 units away.

Space Travel 3C

Set the cat at the position (-140,-100), and a sun at (20,80). *With **one** turn command and **one** move command*, can you move directly towards the sun. Oh yea, make sure you don't burn up, let's stay exactly 100 units away from the sun.

bit.ly/CatAndSun

Space Travel 3D

Set the cat at ANY position, and a sun at ANY position. *With **one** turn command and **one** move command*, can you move directly towards the sun. Make sure you don't end up in the sun, let's stay exactly 100 units away.
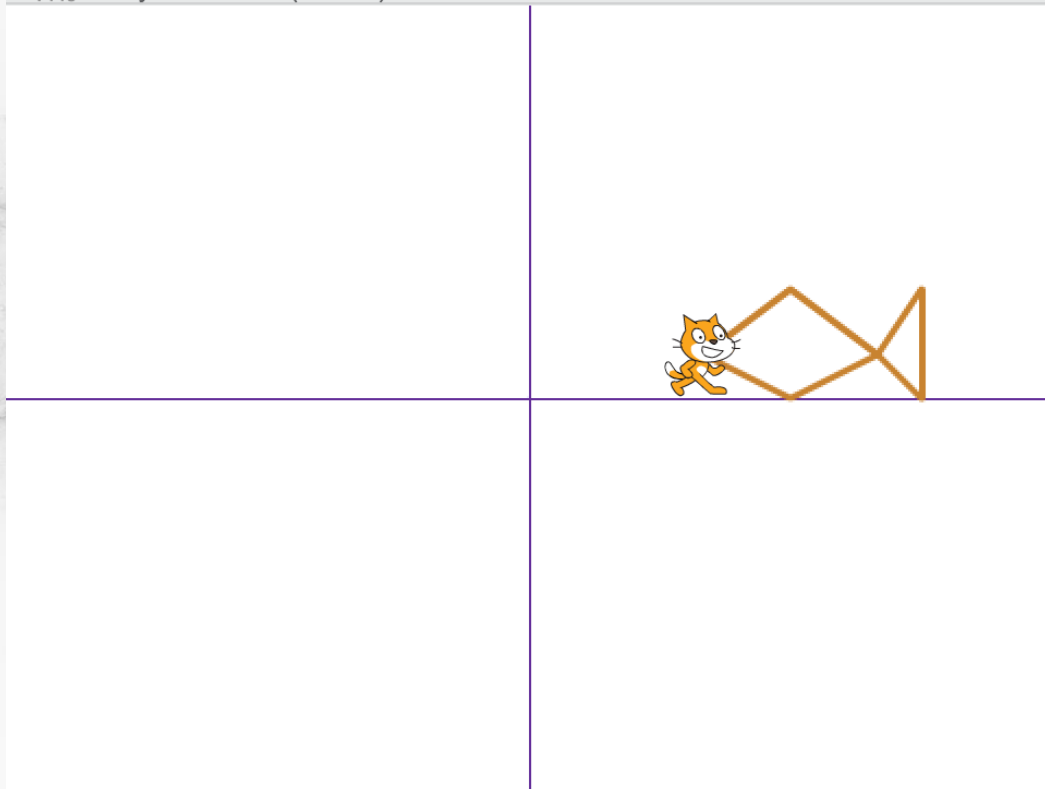
Teacher Time - Task 3

What math or computer programming topics were addressed with these activities?
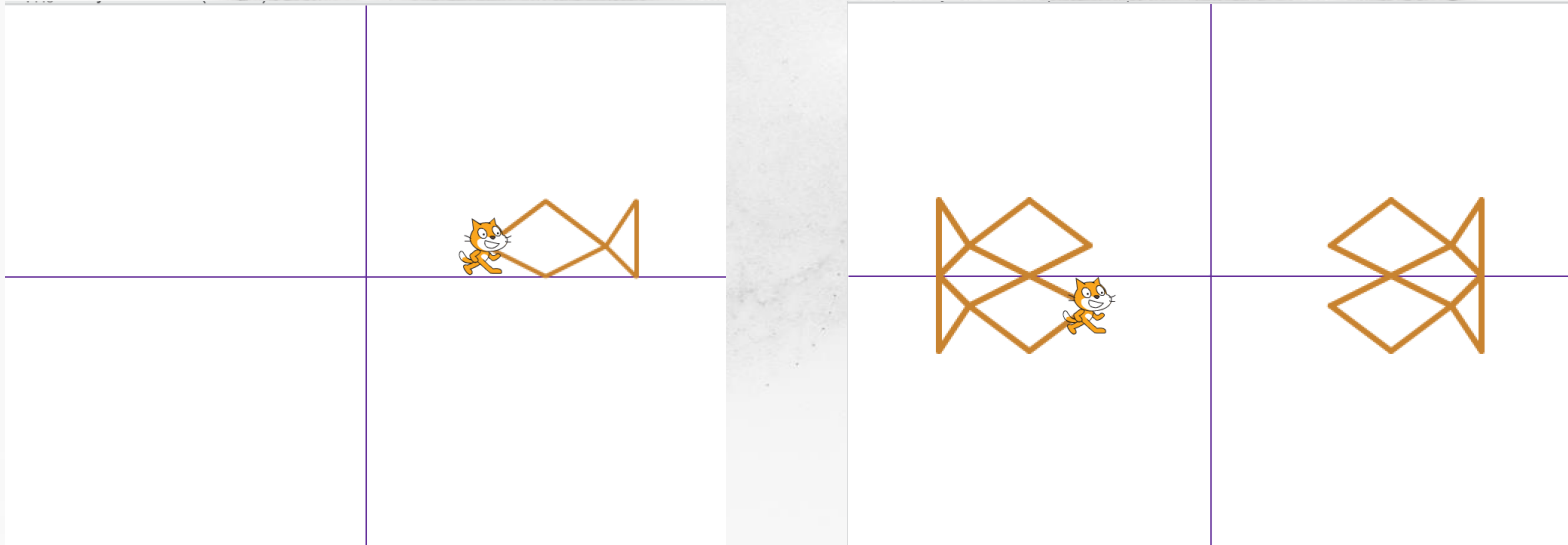
Feedback/Thoughts
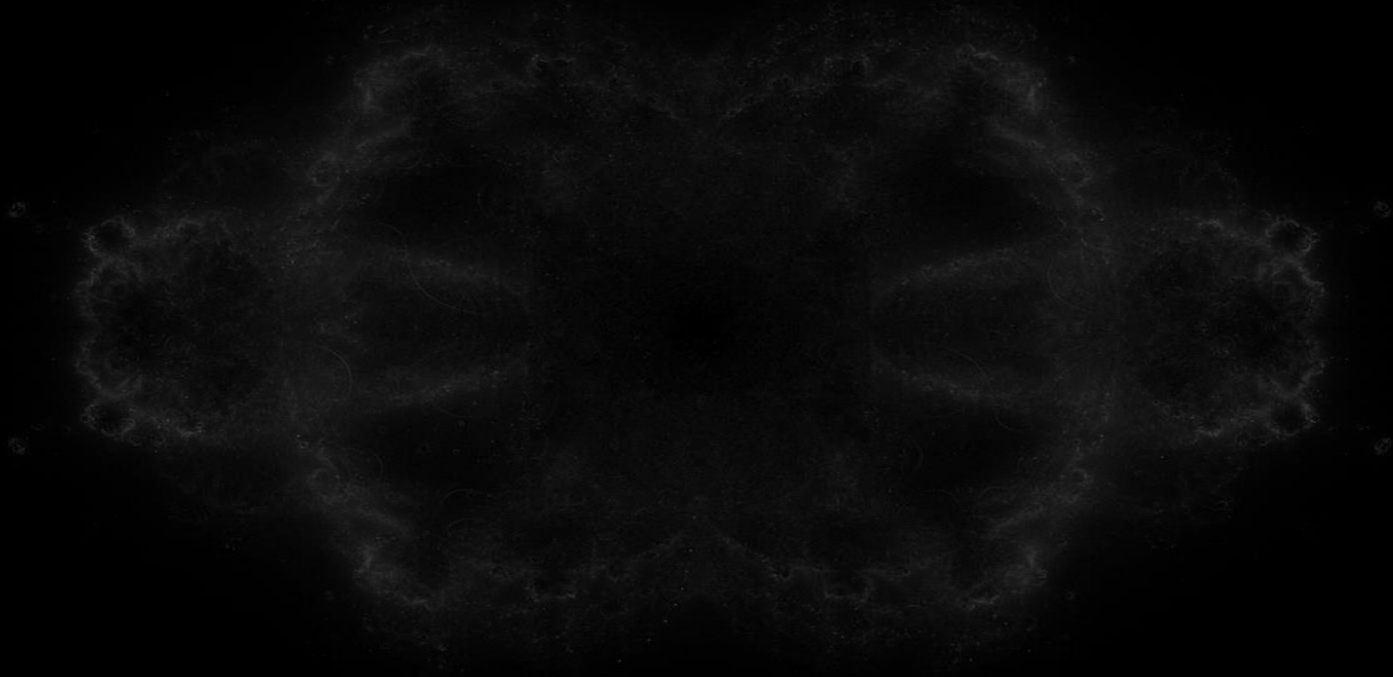
Challenge 4: Cat and Fishy

Cat and Fishy 4A

Can you fill in the rest of the picture? All original code here: bit.ly/CatAndFishy

Teacher Time - Task 4

What math or computer programming topics were addressed with these activities?

Feedback/Thoughts

Wrapup and Thanks

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