



Block Coding Lesson

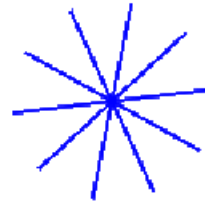
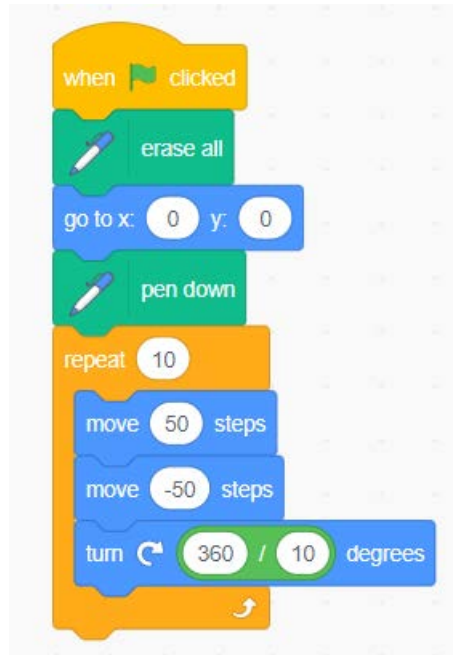
Lesson Title:	Molecular Geometry Scratch Lesson
Grade Level:	High School
Subject:	Chemistry
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Engagement:

- Show a simple Scratch animation of a cat walking back and forth. Walking back should be slower than walking forward. Allow students to write down their observations about the cat.
- Distribute laptops to pairs of students as they work.
- Discuss answers to the do-now.
- Introduce scratch to the class by revealing how the code works. Try changing some inputs for the variables and see how the animation changes.

Exploration:

- Student pairs will go to <https://scratch.mit.edu/projects/251855274/#player>
- Students should see a prewritten code for drawing a star/asterisk. Before they change any part of the code, give them 5 minutes to analyze what the code does. You may also opt to run the code and ask students what is being drawn. Have students write observations in their notebooks.
- Students will then try to create two molecular geometries, linear and trigonal planar, by modifying the code. There are two parts to the modification:
 1. Have the lines be drawn from the center of the page
 2. Have the lines be evenly spaced apart.
- Give students 20 minutes to try out different code blocks to test how they will draw linear and trigonal planar geometries. Go around and monitor for student feedback.



Source: Contributors Block Code and an image on the right

Explanation:

- Students will share their programs with their neighbor and compare ways to create the different visuals. The groups most proud of their programs can share with the whole class.
- When they share with their neighbor, instruct each student to write down three observations they noticed about the code. Allow students to compare each other's code.

Elaboration:

- Have the students try to show tetrahedral and trigonal pyramidal geometries in their programs. Pre-built physical models for the students to see should be passed around for the students to refer to. Give about 10 minutes for this to be done.
- Give another 5 minutes for sharing answers.



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Evaluation:

- Students will complete the exit ticket pictured below.

Name: _____

Date: _____

Exit Ticket

1. What is the angle between the bonds of a linear molecule?
2. How many different bonds does a linear molecule have?
3. What is the angle between the bonds of a trigonal planar molecule?
4. How many different bonds does a trigonal planar molecule have?