Unit 3, Lesson 5: Look out ahead! Adding an Asteroid to Your Game

Lesson Intro:

Theme of the Day
Today students are going to add more asteroids in order to increase the difficulty of their games and prepare the ship for the asteroid field!

Learning Objectives	Concepts (Social & Cross Curriculum)
● Students can add an asteroid and clones to their game to increase the difficulty. ● Students can modify their clones to improve their game.	● Feedback ● Game Design

Vocabulary	Guiding Questions
● Clone ● Feedback ● Gamer Experience ● Debugging	● How might I build code to create an asteroid and clones for my game? ● How will my clone's timing affect the difficulty of my game? ● What kind of feedback from friends will help me design my game?

Resources
● Computers ● Scratch access and logins ● Add an Asteroid Guide ● Space Bucks ● CIC On-Ramp 3.5

Lesson Procedure:

Camp Fire (15 min)

Don't Forget: Make sure there is an open space for students to play Copycat Clone.

Mini-lesson:
Today you are going to be introducing students to the concept of a **clone** through an activity called Copycat Clone. A clone, in the context of your game, is a copy of a sprite that uses the same code. Clones look and act exactly like the original sprite. Today's activity will teach students what a clone is and reinforce the concept.

How to play:

1. Students will stand in two lines with equal numbers, facing each other with space between them.
2. Each student will be paired with the student directly across from him or her.
3. The teacher will choose one line to be the Coders and the other will be the Clones.
4. When the teacher says "GO," the creators will have 20 seconds to act out movements for the clones to copy.

Example: Reach up and stretch to the sky. Do 10 jumping jacks. Run in place. Act like a monkey. Be a Robot. Be a statue.
*Try to make the movements as fun and creative as possible.

5. The Clone will try to copy the Coder's moves as exactly as they were done and as quickly as possible.
6. After 20 seconds, the lines switch jobs and repeat the activity.
7. Have one line shift to the right to create new partnerships and start the activity again.

If there is time, reflect with students about the moves that their clone couldn't duplicate and how they would define the word clone.

Give out Space Bucks for creativity and to students who are on task.

Teacher-Guided Learning (10 min)

Don't Forget: Have the Add an Asteroid Guide ready for students.

Mini-lesson:
Today students are going to create asteroids that add a level of difficulty to their game. They will also be changing values in the asteroid code that controls how fast the asteroids move and how many of them there are in space. Students will build

code that creates an endless stream of asteroid clones in order to make the game more difficult as time goes on.

Clones are copies of something that looks and acts the same as the original.

Adding more asteroids to the game should help increase the **gamer experience** for a player. If the asteroids are well coded, the player will like the challenge of dodging them.

If there are too many asteroids, they are too big, or they move too fast, the player will probably get frustrated and feel like they can't win the game. Students will need to make careful choices about their game and show other designers what they have made to get feedback.

Explain to students that after they have finished adding the asteroids, they will get to be game testers. While testing other students' games, they should look for ways to improve. Testers will need to decide if the game is too difficult or too easy. This could be based on the number, size, or speed of the asteroids.

Tell students that they are perfect game testers because they are already game designers and know what to look for. Students should pair up with a partner to get feedback on their games.

Review as much of the Add an Asteroid Guide as you feel is necessary and then release the students to their computers.

Partner/Team Practice (20 min)

Don't Forget: Have the Add an Asteroid Guide ready for students.

Mini-lesson:
Explain to students that they will be using the Add an Asteroid Guide to add asteroid clones to their game. Remind them to follow directions carefully and ask a friend if they run into a problem or need assistance. Encourage students to work with others to decide on the speed of the asteroids, and have someone else try their game to give them feedback.

While students are working, circulate to see how they are following directions, and working with others to decide on values after they have built the code. Encourage them to show others the values they decided on and have a partner try the game and give feedback on the speed and number of asteroids.

Remember:

a) If they change code so much that the ship is not working, they will need to debug it.
b) If students have been gone or are new to the class, they can remix “CIC On-Ramp 3.5” and will be caught up on code from previous lessons.
c) Remind students that after they finish, they should look for other game designers who are also done so they can test each other’s games and give feedback for improvement.
d) Remind students to debug their code if it is not working.

Give out Space Bucks to students who demonstrate independence, communication, and creativity.

Reflect/Connect (5 min)
Don’t Forget: *NA*
Mini-lesson: Gather the students to reflect on their designs and share how the day’s work went. Ask your students the following questions: *What were some things you noticed about the game that could make it too hard or too easy? How are other students' games different from or similar to yours?* If time allows, have students continue to test and review other students' games. Give out Space Bucks for good communication skills.

Models:

Add an Asteroid Guide

ADD AN ASTEROID GUIDE

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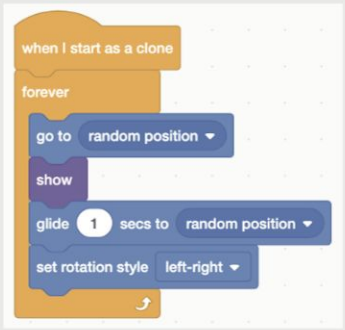
IN	FIND	BUILD
Control		
Motion		
Looks		

Click the to see how your code works!

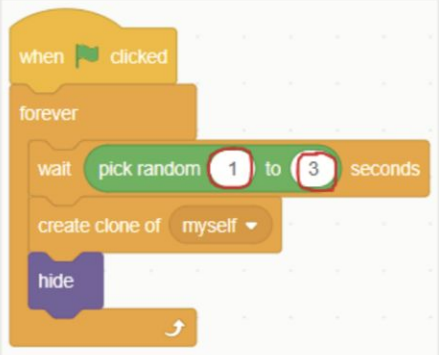
10

Choose a number between 1 and 10. Change this part of the code!

Keep changing the number until you get the right speed!

11

Change these numbers too! What happens if you choose 1 and 2? 5 and 10?



12 Push the button and to test your code

CODEINCLASS