Greenfoot

Asteroids (Part 2)

Objectives

- If you complete all of these tasks you will learn about:
  - Collision detection
  - Removing objects
  - Communicating between objects
  - Keeping score

Asteroids Project

- Make sure you have completed all of the tasks from the Asteroids lesson

Collision Detection

— One object needs to check for a collision with another object

— It's important to decide which object is going to do the checking

— In this case, it's the bullet; open the Bullet class

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Collision Detection

In the act() method, as long as life > 1 we need to check if the bullet is touching an asteroid:

— **Class variable** = (**Class**) getOneIntersectingObject(**Class**.class)
if (**variable** != null)
{
...
}

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Collision Detection

If the two do collide then two things need to happen:

— The bullet needs to be destroyed (removed) - easy

— The asteroid needs to register a hit - harder
[See the next slide if you're struggling]

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Collision Detection

- If you're struggling with making the asteroid register a hit, look at the asteroid class
- There is a method there that takes one parameter
- You just need to work out where to call it and what variable to pass when you do...

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More collision detection!

- One other piece of collision detection is to make the ship explode if it hits an asteroid
- You're on your own with this one...

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Extension

- You'll see there is a Counter class
- It would be great if it could keep score for us...
- The rocket and counter need a way to talk to each other though
  - *Technically, the communication only needs to be one way, but the problem is not a trivial one*

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Extension

- There are two options - either:
  - the counter references the rocket when it gets made, or
  - the rocket references the counter when it gets made
- Create a **constructor** for the Counter class that takes a Rocket as a parameter
- Create the counter in the Space class and pass the rocket object to it NB: a suggested position would be x:50 y:350

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Extension

- The rocket class is where we will keep the score
- We will need 3 things:
  - A **score** variable
  - A method we can use to increase the score
  - A method we can use to get the score

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Extension

- When the bullet hits an asteroid we need to run the Rocket method that increases the score
- In the Counter's act() method we need to get the current score
- Here is some code that might help:

```
String text = "Score: " + rocket.getScore();
GreenfootImage image = new GreenfootImage(text, 20, TEXT_COLOR, TRANSPARENT_COLOR);
setImage(image);
```

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