Creating Class Objects

In this exercise you will create a world. It will contain a girl, cat, bird and toy ring. In the process you will learn about methods, parameters, exporting a class and working in subgroups to create a larger program.

First, your peer leader will demonstrate what the world will look like. Then you will break up into 3 groups. Each group will develop the methods for the main objects. Once the groups are done, each group will export their new objects and then assemble them into one world to see if you can create the whole story.

This program is a challenge but you should be able to do it. Use your peer leader to get help and ask other groups too (since some are doing similar things).

Hints for all groups

If you want to have an object move to another object, you can use the while statement. Drag it into your code and choose true. Click on functions. Drag the “is at least …” onto the “true” in the while statement to replace it. Choose for “at least” a distance (say .6 meters) and for “away from” choose “expression” and “the object you have as a parameter to the method.” Inside the while statement, have the object move forward a little less than the “at least” distance you chose. You can adjust the value to get it so the object moves toward the other object without hitting it.

If it takes a long time for a movement to happen you can speed it up with the slider bar at the top, left when you play a scene. You can also move objects to be closer so it works faster.

Save your world regularly in case something goes wrong.

To export new object, right click on the name and “save object”. Remember to right click and rename first since it is a different object than the original.

You should always document and comment your code. Make sure your code has good comments. The other groups will be looking at it.

Directions for each group

Girl group

You need to do the following:
1. Place randomGirl2 from the People gallery into your new world.
2. Create a method to allow the girl to walk to another object. The object will be a parameter to the method. Choose a distance to walk with each step that is reasonable (say .25 meters). Use a while loop to get close to the object to walk to. Test this method by putting another object in the scene and adding a call in “my first method” to walk to it.
3. Create a method to pickup and object where the object is a parameter. It first calls the walk method to go to the object. Then raise the girl’s arm and raise the object up. Have the object become a vehicle of the girl. This will make sure the object moves with her (since she picked it up). Do this by clicking properties and dragging “vehicle” into your method. In the popup, choose anything. Now click the first menu in the vehicle statement and choose expression->your object parameter. In the second menu you can now choose the girl’s arm that you raised. You can lower the girl’s arm to complete the effect. Replace your call in my first method to call this new method so you can test it.
4. Create a new method to throw an object to another object. The which object to throw and to what object are both parameters of the method. First have the girl turn to face the object you
are throwing to. Have her move her arm and have the object to throw move toward the to object. Use a while loop to do this. Make it land a little away from the object so it does not hit them and they can easily walk to it. Again, modify my first method to test that this works.

5. Export your new object.

Cat group

You need to do the following:

1. Place cheshirecat from the Animal gallery into your new world.
2. Create a method to allow the cat to walk to another object. The object will be a parameter to the method. Choose a distance to walk with each step that is reasonable (say .1 meters). Use a while loop to get close to the object to walk to. Test this method by putting another object in the scene and adding a call in “my first method” to walk to it.
3. Create a method to pickup and object where the object is a parameter. It first calls the walk method to go to the object. Then lower/raise the cat’s head and raise the object up. Have the object become a vehicle of the cat. This will make sure the object moves with it (since the cat picked it up). Do this by clicking properties and dragging “vehicle” into your method. In the popup, choose anything. Now click the first menu in the vehicle statement and choose expression->your object parameter. In the second menu you can now choose the cat’s head that you raised. You can raise the cat’s head to complete the effect. Replace your call in my first method to call this new method so you can test it.
4. Export your new object.

Bird group

You need to do the following:

1. Place bluebird from the Animal gallery into your new world.
2. Create a method to allow the bird to fly around another object that is a parameter. Use the turn method. In the “more” menu you can use “as seen by” to make it the object you want it to fly around. Test this method by putting another object in the scene and adding a call in “my first method” to walk to it.
3. Create a method to allow the bird to fly at another object that is a parameter. Use a while loop to get it close to the object without hitting. Replace your call in my first method to call this new method so you can test it.
4. Create a method to make the bird fly a specified distance away from where it is pointing. First turn the bird half way around and then have it move the distance given as a parameter. Test that it works.
5. Create an eat method where the object to eat is specified. First have the bird fly to the object (use the method above). Then have it eat it by opening its beak, going forward a little and then making the object to eat disappear. You can make it disappear by clicking on properties, dragging in “isShowing” and choosing false. Then the bird can close its beak. Then click on the first menu to change it to expression->your object parameter. Test that this works.
6. Export your new object.
Everyone together

Once everyone has an exported object, you need to put it all together. If you finish first, you can try to make your part look better. Remember to save the first version someplace safe so you can go back to it if your fancy version does not work. You need to do the following:
1. Import each object into a new world. Use File->Import. Resize and move as needed.
2. Add a torus to the world. Put it somewhere near the girl and make it the size of a ring she could throw. Use properties to make it the color you want.
3. Have the girl pickup the torus and then throw it to the cat. You have methods to do both of these.
4. Have the cat pick up the torus. Again, you have the method to do this.
5. Have the bird fly around the cat, then fly at the cat, and finally fly away from the cat (say 2 meters) with your developed methods. Then have the bird say “Polly want a cracker!”, and then have the cat turn to face the bird. Finally, have the bird eat the torus with your developed method.
6. If you have not looked at all the code the other groups did, you should make sure you do that.

You are likely going to need to make some changes to get it all to work. Do it in steps so it is manageable.