Name_____ Period _____ Date _____

Face Recognition

Lesson 2: Face Matching Using Statistics
A secret agent uses a disguise to try to enter a country illegally. He applies a fake moustache and dyes his hair dark brown to fool the guards charged with keeping him from passing through the entrance security system. Is there a way to identify the agent even with his disguise in place?

Doing the Science
1. Start the Face Recognition Simulation by clicking on the "Sim" tab.
2. Click on the "Measure" button below the face in Box 1 on the left of the screen.
3. Follow the on-screen instructions in the black boxed area in the middle of the screen. Make sure to make all of the measurements.
4. For instance, to make the first measurement of the "Center of one pupil to the other pupil," click in the center of the left eye of the face in Box 1 and drag the curser to the center of the face's right eye. Release the curser. Record your measurements in Table 1.
5. Make sure to make follow all instructions and make all of the measurements.
6. Follow the on-screen instruction when you complete the measurements for the left face.
7. Move to the face to the right in Box 2 to make your next set of measurements. Make sure to record these measurements in Table 1.
8. After you have completed all measurement, click the "Correlation" button at the bottom center of the screen.
9. Record the given Facial Recognition Correlation value in Table 1.
10. Click the "Change Image" button in the Box 2 area.
11. Repeat steps 7 - 10 with the new face shown in Box 2.

Table 1.

Measurements	Box 1 Face	Box 2, Face 1	Box 2, Face 2	Box 2, Face 3
Center one pupil to other pupil				
Inside eye corner to other eye corner				
Outside eye corner to other eye corner				
Width of mouth				
Pupil to pupil center to upper lip				
Nose width				
Correlation	--------------			

Do You Understand?
1. Which face in Box 2 most closely matched the face in Box 1?

2. What are some limitations of the face matching system you used in this simulation?