

INTRODUCTION TO BIOINFORMATICS

Pre-Lab Activity: Morphology-Based Classification

Think-Pair-Share Using Google Jamboard

OVERVIEW

This online, interactive activity encourages students to classify unknown arthropods based on morphology. They will then proceed to Lab 5 of the *Wolbachia* Project and apply bioinformatics to determine taxonomic identity and evolutionary relatedness of the same arthropods using DNA sequence information.

REQUIREMENTS

- Computers with internet access
- Arthropod image files: <https://wolbachiaproject.org/bioinformatics/>
- Access to Google Jamboard: <https://jamboard.google.com/>

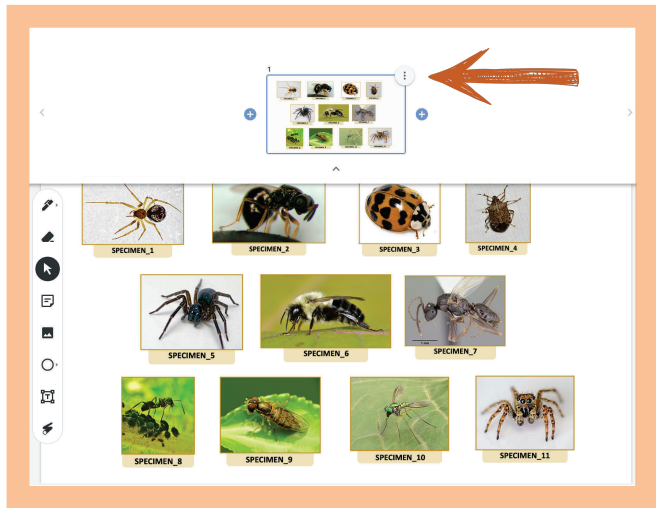
Create the Classification Jam Template

1. Download the Arthropod Specimen Images (1 to 11) to your computer.
<https://wolbachiaproject.org/bioinformatics/>
1. Navigate to <https://jamboard.google.com/>
2. Click the "+" icon in the lower-right corner to create a New Jam. This will create a blank Jamboard.
3. In the top navigation panel, click on "Untitled Jam" and rename the Jam.
4. In the left navigation panel, click on the image icon to upload images. Either drag-and-drop the images or use the Browse button to upload images. They may have to be uploaded one image at a time.
5. Resize and arrange the images in sequential order. Leave some white space for the movement and manipulation of images.
6. In the top-right navigation panel, click on the dropdown menu (three dots) and select "Make a Copy". Rename this copy as a template. It can be used for additional classes and/or future use.
 - *Important:* Do not manipulate the template Jam. Create a new Jam for each class.



Prepare the Class Jam

1. Make a copy of the template Jam.
2. In the top navigation panel, click on the "1/1" slide icon.
3. Click on the dropdown menu (three dots, shown to the right) and select "Duplicate". This will create a duplicate slide.
4. Continue duplicating the original slide for the anticipated number of student groups.



Share the Class Jam

1. In the top-right navigation panel, select the blue "Share" button.
2. Under General Access, select "Anyone with the link" and change the Role >> Editor.
3. Select the "Copy link" button.
4. Share the link with your class.

Instructions for the Classification Think-Pair-Share Jam

1. Present the collection of arthropod images to the class and ask them to THINK individually about a classification scheme.
2. PAIR students into groups. They should discuss their proposed classifications and consolidate a classification scheme using one of the Jamboards.
 - Use the left-hand tools to personalize the Jamboard with student names/initials, background color, etc.
 - Use the left-hand tools to classify arthropods into groups.
3. After all groups have completed the activity, ask each group to SHARE their Jamboard along with the logic for their classification scheme.
4. Save the Jam and revisit after completion of Lab 5 of The *Wolbachia* Project. Compare results from the morphology-based Classification Jam to DNA-based classifications.