

Lesson 4: Re-telling the piloses story

In this activity, you will retell the story of how a population of piloses that had mostly thicker noses changed so that many generations later, piloses had mostly skinnier noses. This is a chance to review the process of change over time called natural selection.

Imagine a small population of piloses – 12 individuals. Their environment has become extremely hot and dry so their food source (millibugs) now lives underground at the end of thin tunnels. In this activity you will figure out how this will affect individual members of the piloses population—individuals whose noses are similar but not all the same. Some individuals' noses are wider or skinnier than others.

Let's think about the first generation of piloses.

Pass out the 12 pilosa cards to each small group and project the slide: *What does the 1st generation look like?* This slide provides the first set of steps to the students:

Step 1: **Look at** the 12 piloses cards. This is the 1st Generation. Look at the nose trait and observe the width.

Step 2: **Line up the piloses in order of nose width:** from widest to the skinniest.

Step 3: **Sort them into three groups** (wider, medium width, skinnier)

Note: In nature, the width of noses do not break into distinct categories, but we have divided them into three groups for this activity. Students get to decide how to sort the noses and they may have different ideas about which group the individuals fall into. This is ok.

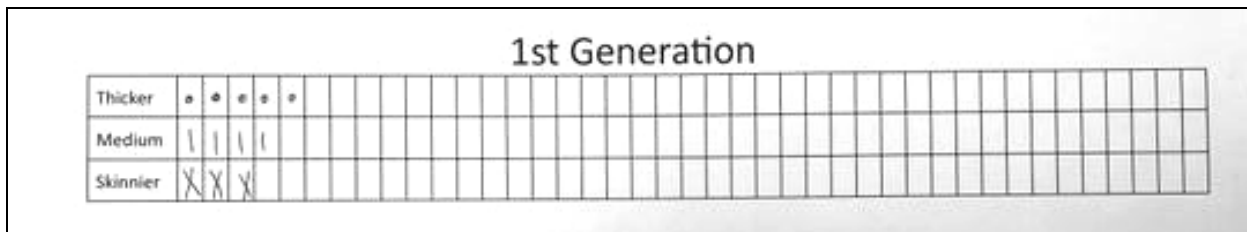
Step 4: **Count the number of piloses in each group** (wider noses, medium noses, and skinnier noses). Write the numbers in the **data table** on page 10 of the notebook.

Step 5: **Fill in the summary graph** on page 11 in the notebook. Have the students use different colors or patterns to fill in the three different groups of piloses.

Important: Be sure to have students fill in the 1st generation graph before you move on.

Here is an example of what your students' graphs of the 1st generation might look like:

Note: This sample graph is only a guide for you; your students will have different numbers depending on the decisions they make.



Now that we have figured out what the 1st generation of piloses looks like, let's remember that their environment has become extremely hot and dry and the millibugs that they eat now live at the bottoms of long underground tunnels.

Let's figure out what happens to these 1st generation piloses.

Project the next slide: *What happens to the 1st generation?* This slide contains the next set of instructions for the students:

Step 1. **Decide** with your group *how much food* a pilosa in each group in the first generation can get. Record this in the data table.

Lots = enough food to stay healthy

Some = just enough food to stay alive but be sickly

Little = this means they'll die

Step 2: **Decide** with your group *how many babies* will be born to piloses in each group. Record this in the data table.

Remember, the more food they get, the healthier the parents will be, and better health means they can have more babies.

- 2 babies each (the maximum for piloses)
- 1 baby each
- No babies

Step 3. **Figure out the total number of babies** in each group and **record** the total number of babies in each group of the 1st generation.

If there are 5 piloses with thicker noses, all 5 will have a hard time getting food so they may have 1 baby each or no babies at all. If 2 thicker nosed piloses each have 1 baby and the other 3 thicker nosed piloses have no babies, then the total number of babies in the thicker noses group in this generation will be 2.

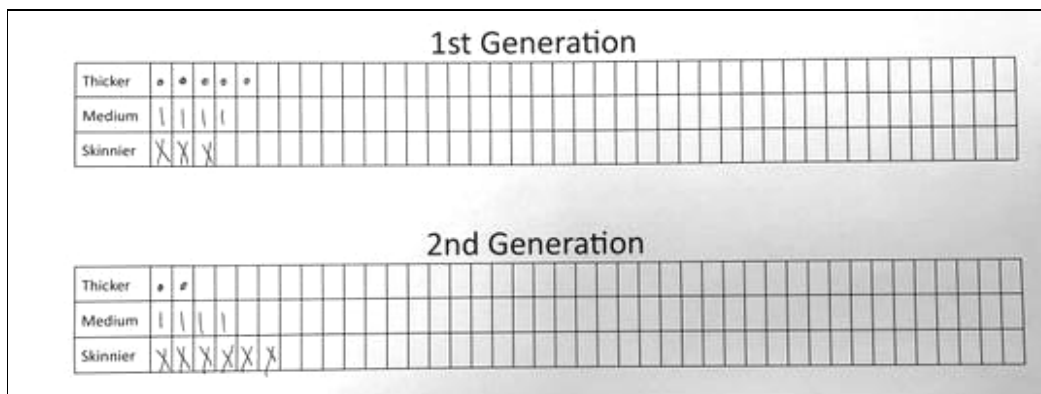
These babies will grow up to be the adults in the 2nd Generation..

Step 4. Record the number of adults in the 2nd Generation.

Explain that

- 1. The babies in each group of the 1st Generation piloses grow up to be the adult piloses in the same group (thicker, medium thick, skinnier noses) in the 2nd Generation.*
- 2. Babies will tend have the same trait variants as their parents. So the babies from 1st Generation thicker nosed piloses will be likely to have thicker noses.*

Step 5. Fill in the 2nd generation on the summary graph. Again, have students use different patterns to fill in the three different groups of piloses. Here is an example of what your students' graph might look like now. Remember their numbers may be different. Notice that in this example, the same patterns were used for the different groups in both generations.



Now that we have figured out what the 2nd generation of adult piloses looks like, you will figure out what happens next!

Have students complete the same steps for the 2nd generation. They will

- Decide how much food each pilosa will get
- Decide how many babies each pilosa will have
- Figure out how many babies each group of piloses will have in total
- Record the number of adults in the 3rd generation (when the babies of the 2nd generation grow up)

Here is what their graph might look like at this point:

