

Unit 4 Activities



Activity 4.1: A Royal Pattern

Introduction:

Koa decides that he wants a new cape with his special pattern. In this activity, we'll see how he can dilate a small picture of his drawing to decorate his cape.

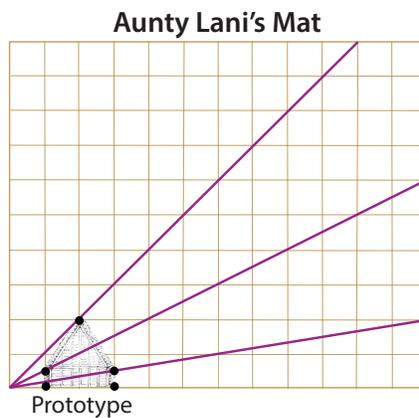
Materials needed:

1. Permanent marker
2. Rulers
3. Brown paper bags (for a cape)
4. Tape

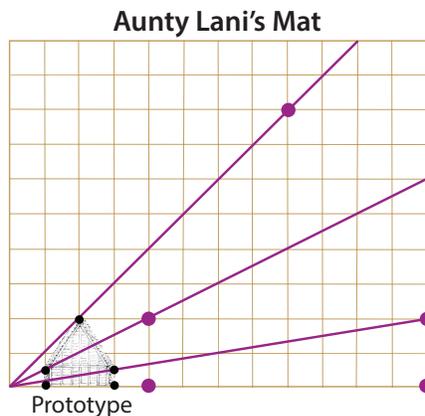
Activity:

He doesn't really know what he's doing so he goes to his aunt for help. Aunty Lani is an expert in these kind of things so Koa visits her and watches her dilate a picture of a house on her mat.

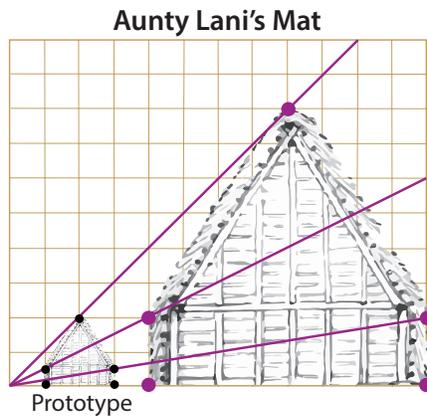
1. Aunty Lani chooses important points on the prototype. Then she uses strings to draw lines from the origin (bottom left corner) through the points.



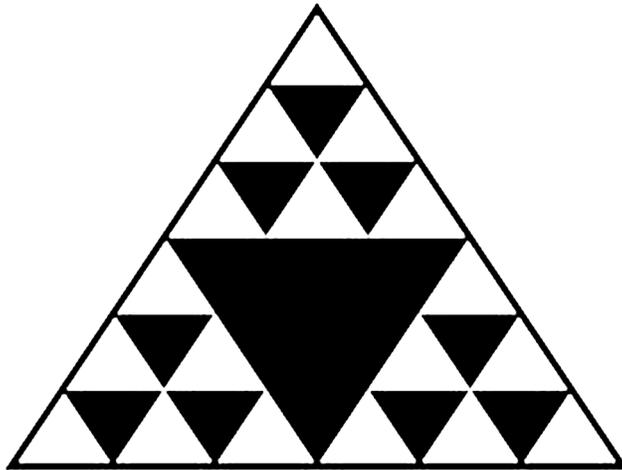
2. Aunty Lani moves the points down the lines from Step 1, making sure that they all line up correctly. *Pay attention to which dots line up vertically and which line horizontally.*



3. Now that Aunty Lani knows where all the special points end up, she can easily fill in the rest of the missing pieces.



Let's use the same principles demonstrated by Aunty Lani to dilate Koa's cape pattern. Koa wants this pattern 3 times bigger than the picture given below printed onto his cape.



Cut open the paper bags to get an adequate surface for drawing and tape together enough to make a cape. Place the small logo to the left of the paper bag cape and use dilation to enlarge it. Try to get it to be 3 times larger than the original.

Activity 4.2: Poi Dance

Introduction:

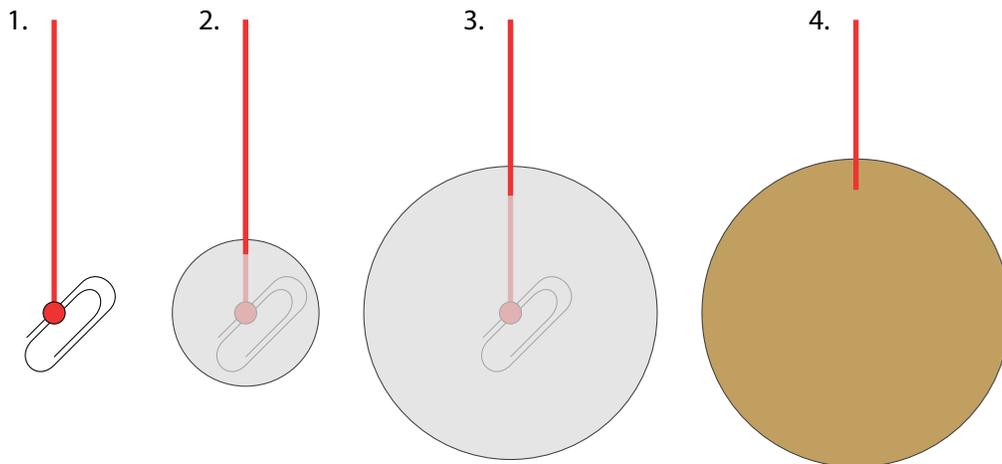
In New Zealand, many Maori people practice a traditional art form called *poi*. Poi is a beautiful dance that includes a spinning ball on a string in different patterns. Sometimes sticks are used in the dance too.

Materials needed:

1. Thick string (like yarn)
2. Scissors
3. Paper clip
4. Lots of scratch paper or newspaper
5. Masking tape
6. Permanent markers

Activity

1. First we need to find a way to connect our poi spheres to the string. We'll do this by tying a big strong knot onto the paper clip.
2. Then we'll start building our poi sphere by tearing small pieces of paper and crumpling the paper around the paper clip.
3. As the poi sphere gets larger, we can wrap larger pieces of paper. Let's wrap until the poi sphere is about as big as two fists held together.
4. When the poi sphere is big enough, we'll cover it with a thin layer of masking tape.



5. Draw two rings on the poi sphere. Make sure that the rings intersect at the string and at the point opposite to the string. This should split your poi sphere into four sections like cutting an orange into four wedges.

6. Using the rings as guidelines, draw your own designs with markers! Draw lines and shapes and transform your drawings to make patterns. Try to use translations, rotations, reflections, and dilations if you can.

