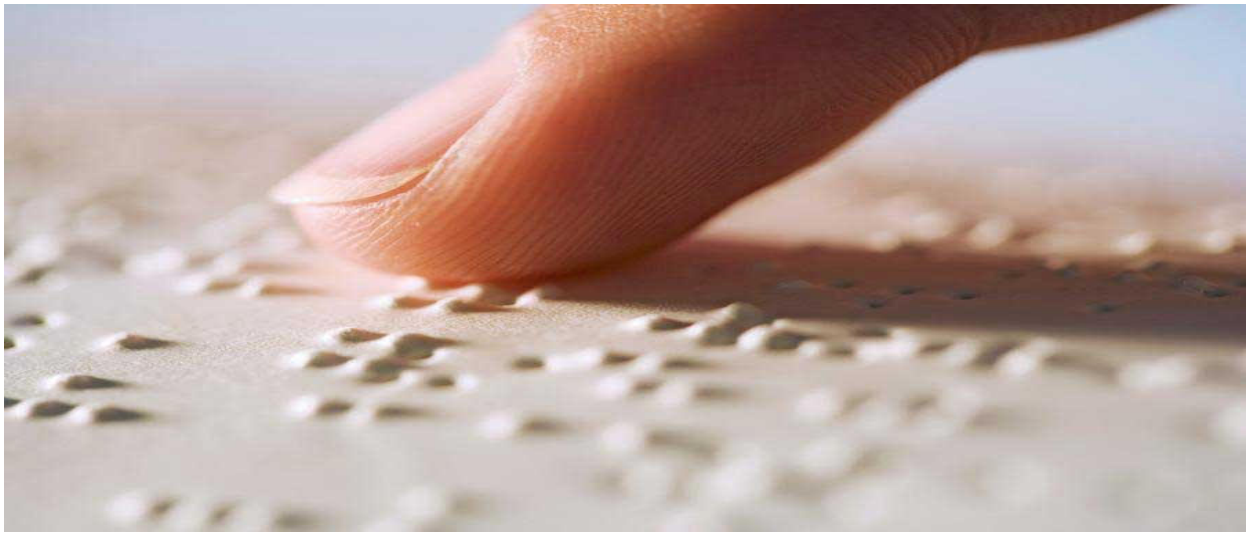
Braille read and write



Braille read and write

The Braille system is a way of writing things. It is named after Louis Braille, the French man who invented it. The system is used by blind people to read and write. The Braille system uses a set of raised bumps or dots that can be felt with a finger. Each set of dots is a character in an alphabet, and the numbers and some punctuation.

r

The Challenge

Introduction

Have you ever been in an elevator and wondered what the many little dots on the buttons are for? You can also find these dots in public buildings on room number signs or on ATMs. These arrangements of dots are a special writing system for the visually impaired called braille. By feeling the dots with their fingers, people can read what is written on a sign or elevator button. Do you want to find out how to read with your fingers? This activity will show you how!

Your materials:

1- **Graph paper.**
2- **Parchment paper.**
3- **Pencil or other pointed object such as a knitting needle.**
4- **Cardboard.**
5- **Computer with access to the internet.**
6- **Tape.**
7- **Helper.**

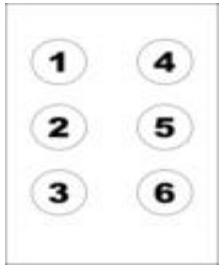
Problem Solving

Ask:

Which finger is best to use for reading ?

Imagine:

Can you read with either hand ?



Planning

Plan : Label your steps and identify who will do each step.

2. Test your steps

Perseverance

Test

Test your model

What do you think the purpose of space between dots ?

Improve

Can you read your letters better if the dots are closer to each other, or further apart?

Presentation

Congratulations on persevering through this STEM challenge!

As you review your final product, please answer the following questions:

- What was your **plan** and why did you use this design?

- How did you solve **problems**?

Presentation

What are some examples of how you **persevered**?

STEAM integration

Science : 5 senses.
Human body parts.

Math : Numbers.
Geometrical shapes and calculations .

Engineering : How to design braille letter template .

Art : Draw letters and numbers using braille technique .

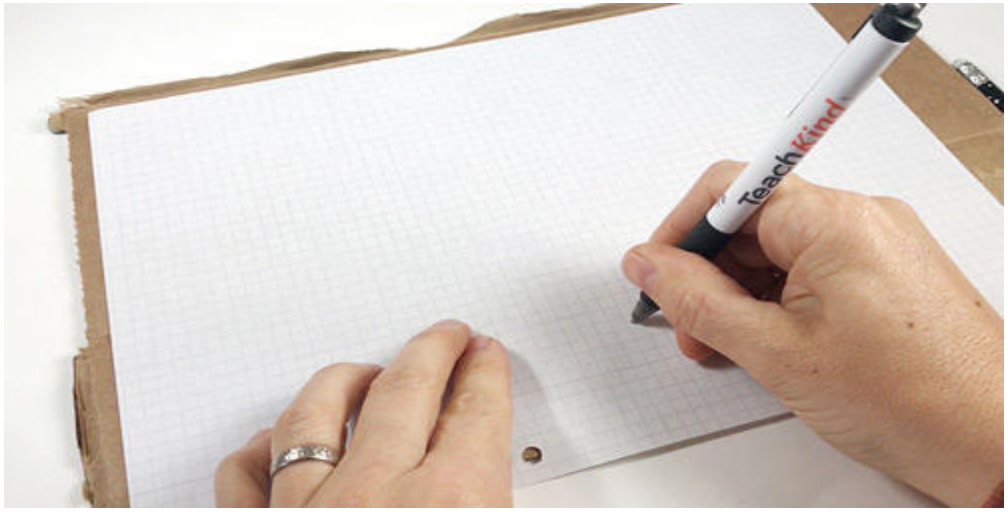
Technology : Slide show presentation about braille .

Preparation

1- If needed, clean out the pizza box so it is ready to become a solar oven. Remove any liners that the box came with.
2- Adult assistance is recommended for using the utility knife. And use caution when cooking with the solar oven as it can get quite hot!

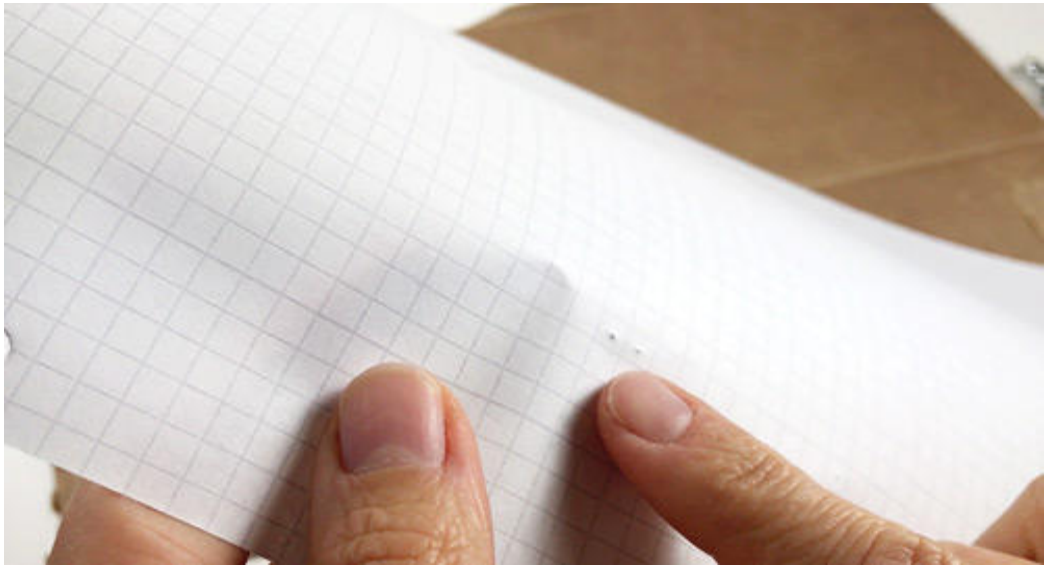
Procedure

1- Choose one square and carefully press down on the paper with the tip of the pencil or knitting needle. Be careful not to puncture the paper.



2- Flip the graph paper over. Can you see the raised bump in the paper? Run your index fingertip over the punched spot.

3- Repeat step one, but this time, choose two squares next to each other and punch lightly onto the paper with the tip of the pencil.



4- Next, place the parchment paper onto the graph paper. It helps if you tape them together. Think of a whole word to write and with the help of the braille alphabet, write the corresponding dot patterns onto your parchment paper. The graph paper underneath helps you to keep the dots in line.

5- Keep the graph paper on top of the cardboard, flip over the parchment paper, and lay it on top of the graph paper. Again, press on each dot of your dot pattern written on the parchment paper to create bumps in the graph paper underneath.

6- Once you are done, flip your graph paper over and compare your dot pattern with the one you made in step .

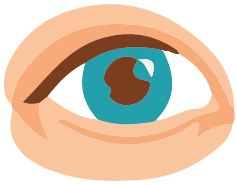
7- Now try to tread the correct dot pattern with your fingers.

8- Ask your helper to create a letter dot pattern for you the same way you did it in steps 1 and 3. He or she should keep the letter secret from you. Once your helper has completed the dot pattern, check the braille alphabet once more, and then close your eyes. Try to identify the letter with your fingertips without looking.

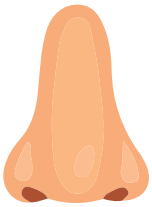
9- Repeat step 8 as often as you like or make it more difficult and ask your helper to write a whole word in braille for you. Can you read the word with closed eyes?

My Body Parts

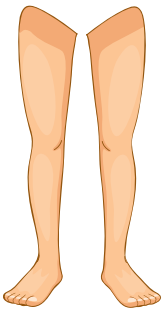
Chin



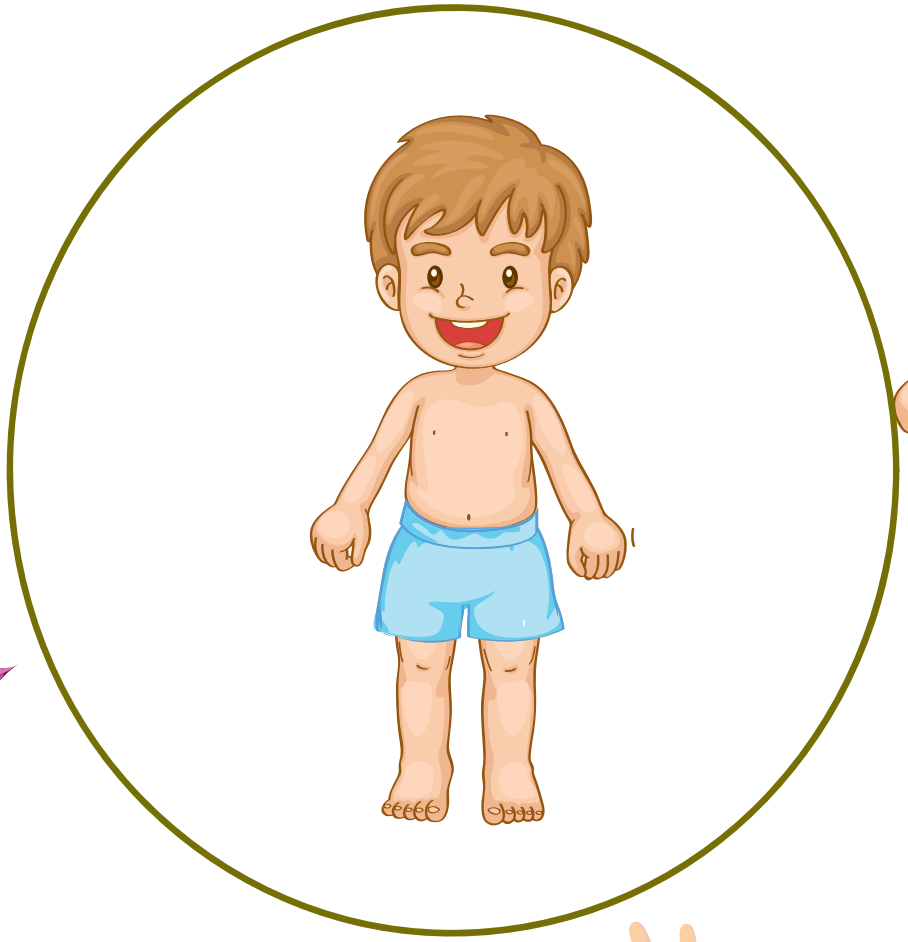
Eye



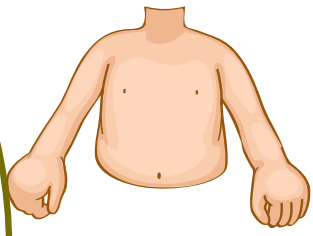
Nose



Legs

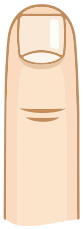


Tongue

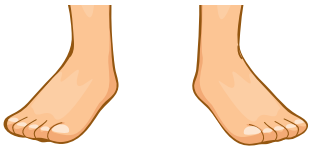


Stomach

Lips



Fingers



Foot

Teeth

Hand

Ear

The Five Senses

All humans and animals have senses.

Animals have some senses which are stronger than others.

Humans have five senses that help us notice different things.

I use my eyes to see .

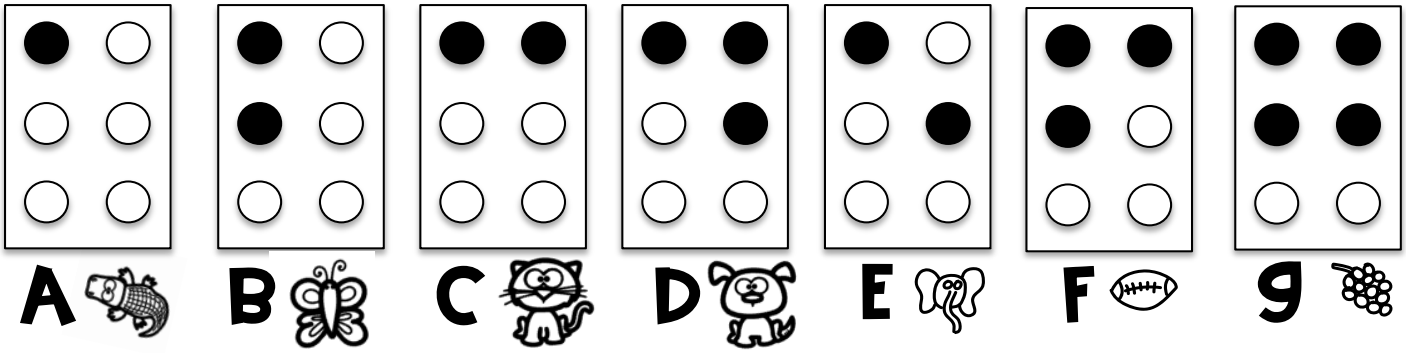
I use my tongue to taste food.

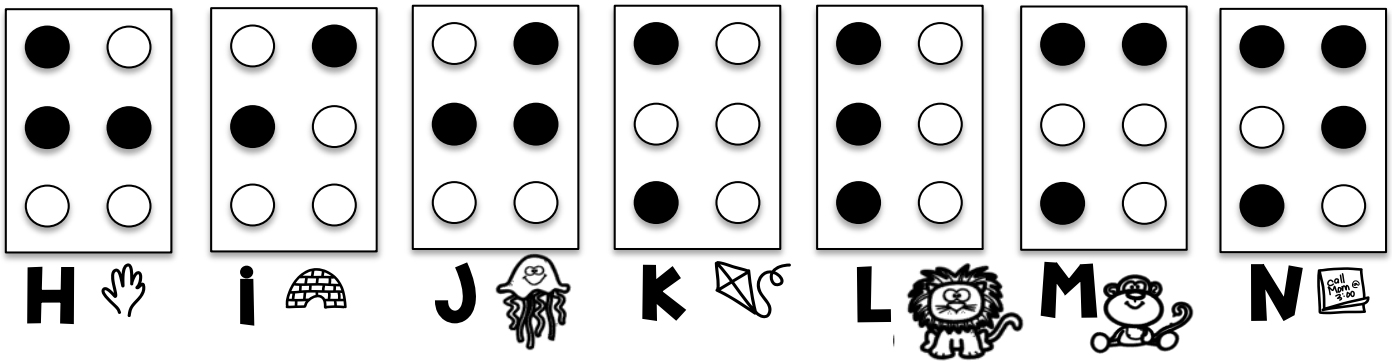
I use my nose to smell.

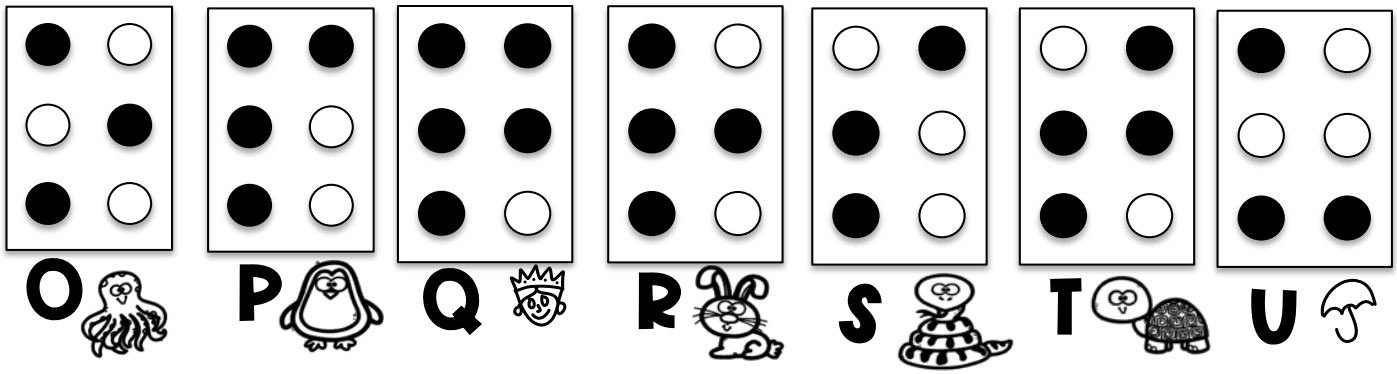
I use my ears to hear sounds .

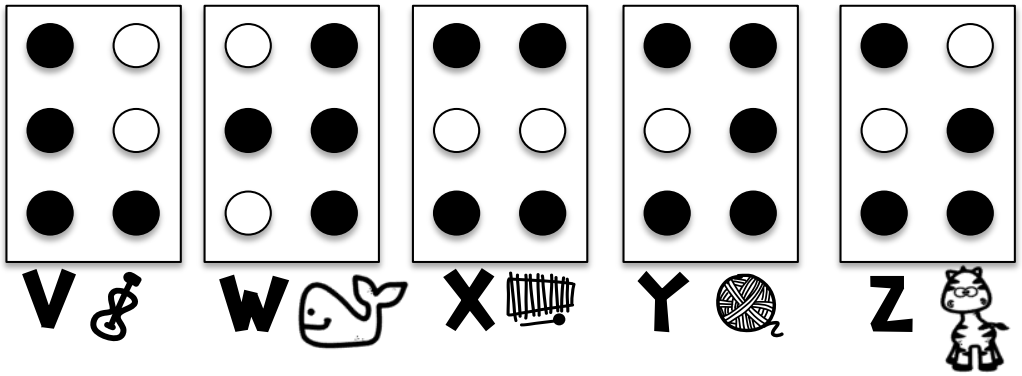
I use my hands to touch things .

BRAILLE ALPHABET









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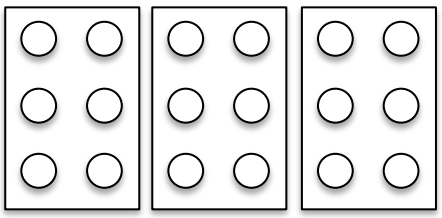

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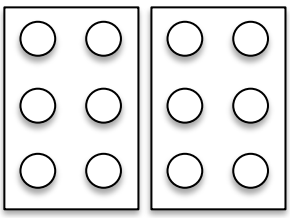

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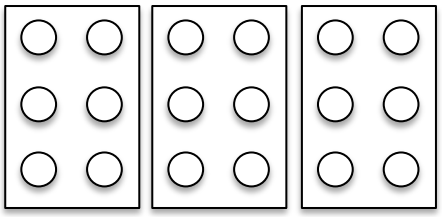

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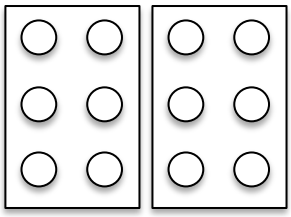

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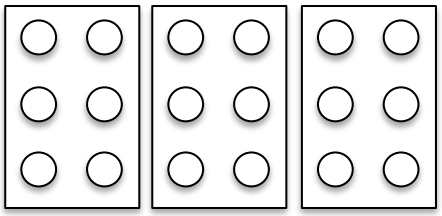

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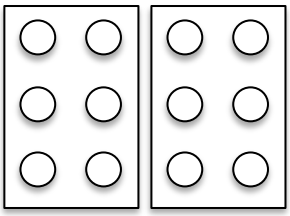

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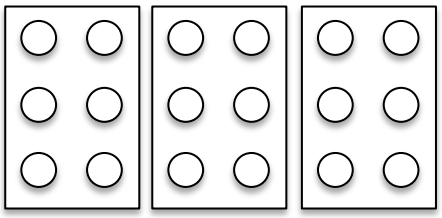

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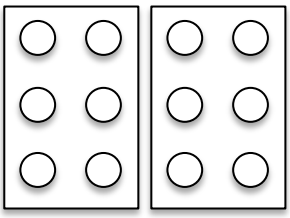

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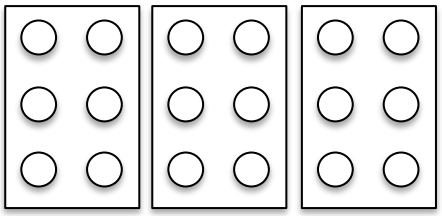

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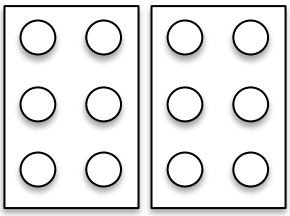

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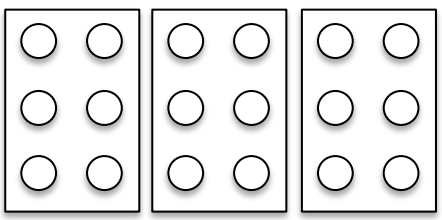

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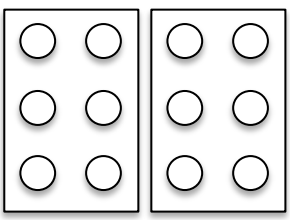

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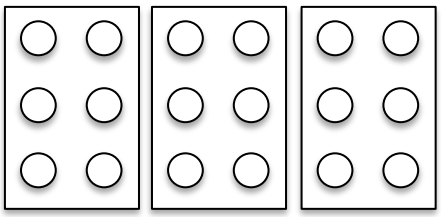

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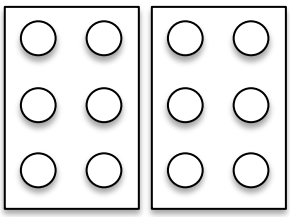

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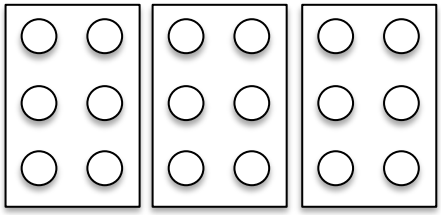

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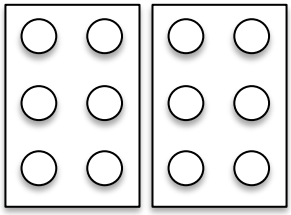

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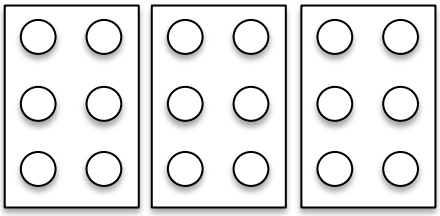

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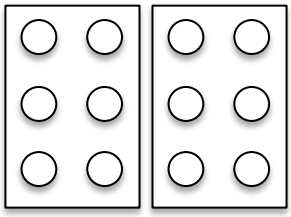

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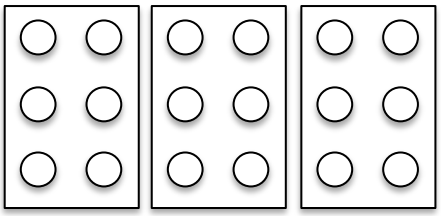

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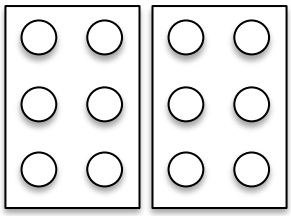

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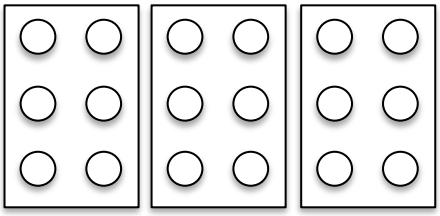

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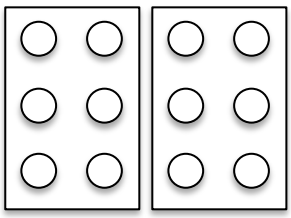

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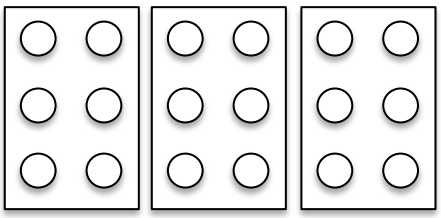

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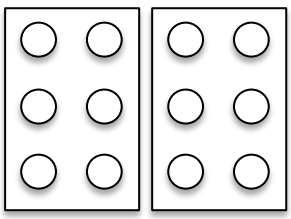


Facilitator

- Supervises and makes sure that all group members are on task
- Encourages participation
- Has final say in arguments

Reporter

- Records detailed notes on ideas and progress
- Revises notes as needed from tests of prototype

Materials Manager

- Gets materials and tools for group
- Makes sure materials are kept neat
- Supervises clean up

Presenter

- Presents finished work to class
- Leads discussion of group's work

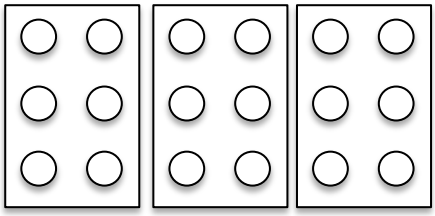
Reader

- Reads the problem to the group
- Leads discussion of ideas

Time Keeper

- Monitors the time
- Helps to keep the group on task

one



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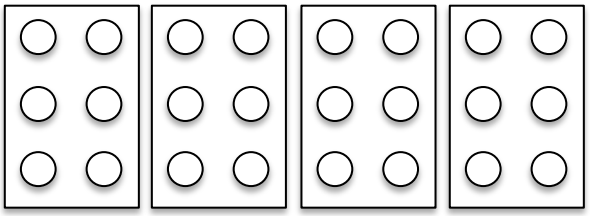

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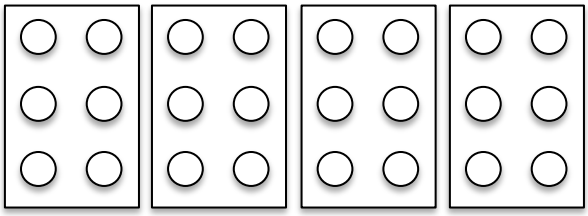

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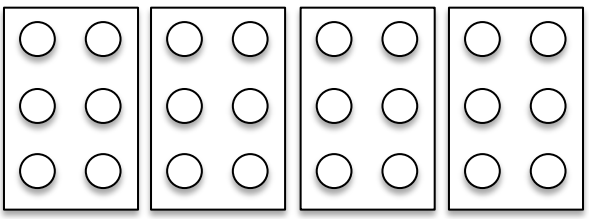

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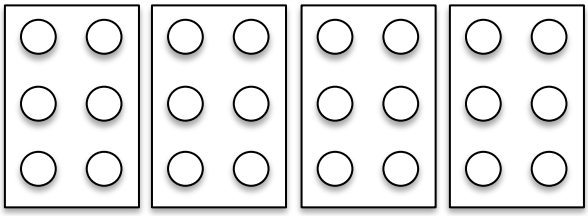

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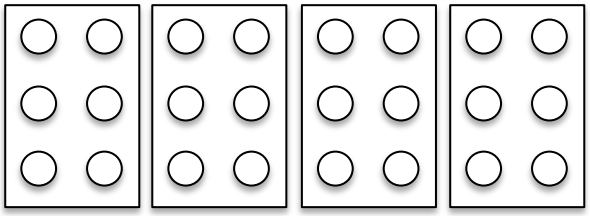

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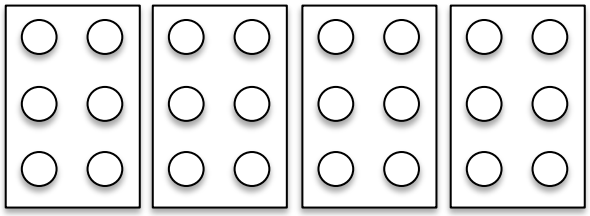

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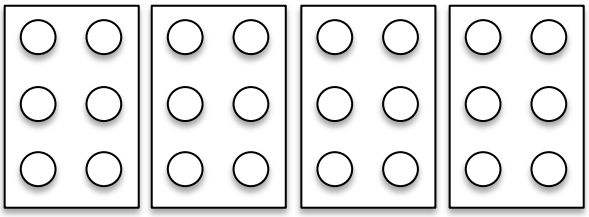

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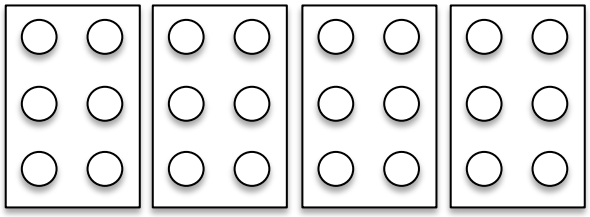

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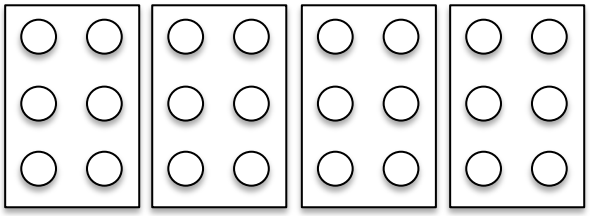

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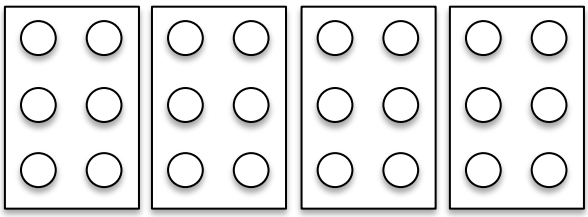

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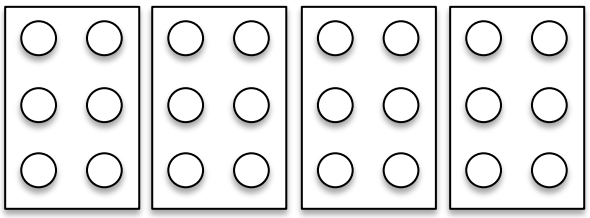

STEM Lesson Checklist

	Self-Assessment - Developing (1) - Satisfactory (2) - Outstanding (3)
1. Aligned to Grade-Level Standards The lesson is aligned to appropriate state and/or national math, science, technology, and engineering standards.	
2. Multidisciplinary A true STEM lesson must integrate science, technology, engineering, and mathematics.	
3. Addresses Authentic Challenges The lesson presents students with real-world challenges or problems with practical and meaningful implications.	
4. Integrates 21st Century Skills The lesson encourages students to develop creativity, critical thinking, problem solving, and teamwork.	
5. More Than One Solution The lesson includes problems or challenges that have more than one possible solution.	
6. Uses the Engineering Design Process Any design, construction, or prototyping follows the steps of the engineering design process.	
7. Hands-On The lesson encourages hands-on manipulation of technology or materials to solve a problem or engineer a design.	
8. Integrates Technology The lesson incorporates technology is a way that is seemly and appropriate, simplifying rather than complicating the lesson.	
Overall Score	