



GGC Make A Difference Days

International Day of the Girl

Close The Gap

Tuesday October 11, 2016

International Day of the Girl (IDG) is an opportunity to bring global focus to girls' rights, the challenges that girls face in their everyday lives and to empower girls to make a positive difference in the world.

This year GGC is focusing on inspiring girls and young women to explore science, technology, engineering and math (STEM) and the opportunities that exist within these fields.

Celebrate International Day of the Girl by having a special meeting and help girls earn the IDG crest!



INTERNATIONAL DAY OF THE GIRL

International Day of the Girl (IDG) is a day to recognize and support girls' rights and to end global gender inequality. This initiative was created to bring world focus to the challenges that girls face in their everyday lives, and to support governments and communities in addressing these challenges. As a girl-serving organization and a member of the world's largest voluntary movement for girls and women, Girl Guides of Canada–Guides du Canada (GGC) continues to commemorate this day each year with a specialized instant meeting. Our theme for 2016 is Close the Gap. GGC wants to help close the gap between boys and girls engaged in science, technology, engineering and math (STEM) by encouraging girls who are interested in exploring these areas.

Increasing girls and young women's participation in STEM is an international priority. Countries all over the world are working towards inspiring girls and young women to explore these subject areas and to increase the diversity of individuals involved in these fields. Numerous organizations are increasing their efforts to engage girls and young women by exposing the array of opportunities that exist.



Don't forget to share your creations and activities with us! Use hashtags **#dayofthegirl** and **#girlsinstem** and tag us:



Girl Guides of Canada



@girlguidesofcan



@girlguidesofcanada

OBJECTIVES AND OUTCOMES

For International Day of the Girl 2016, GGC will help girls explore numerous opportunities in science, technology, engineering and math.

This instant meeting is divided into three sections:

1. Starter activity
2. Activities for each subject area (science, technology, engineering and math)
3. Closing activity

Complete both the **STARTER ACTIVITY** (see page 4) and the **CLOSING ACTIVITY** (see page 20) as well as four other activities to earn the International Day of the Girl crest, available through thegirlguidestore.ca. These activities can be selected from whichever STEM areas your unit is interested in exploring. In order to minimize the amount of supplies needed, units may want to set up “Science,” “Technology,” “Engineering” and “Math” stations throughout the meeting space, and have girls rotate through each one.

At the end of this meeting guide, there are brief bios of women who are currently making waves in STEM. Feel free to share their stories with your unit throughout the meeting as you complete activities in the different areas.



Look for this **OUTDOOR** icon throughout the meeting. This icon identifies activities that can be done outside with little or no modification.

LEARNING OBJECTIVES

- To inspire girls to get involved in science, technology, engineering and math
- To help girls develop confidence in learning about STEM subject areas
- To create awareness of the opportunities for girls in STEM
- To help girls recognize that STEM subjects play important roles in their lives

LEARNING OUTCOMES

- Girls will develop the confidence to participate in and explore STEM subjects
- Girls will become aware of different opportunities that exist to become involved in STEM
- Girls will begin to understand the importance of closing the gap between boys and girls engaged in STEM
- Girls will become excited and curious about STEM and STEM-based activities
- Girls will be able to identify the different ways they use STEM in their daily routines

BEGIN the instant meeting with this Starter Activity.

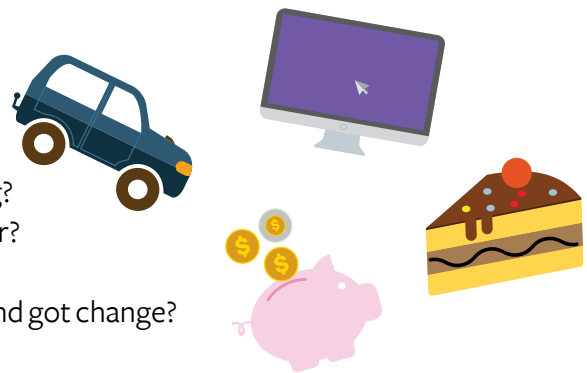
STARTER ACTIVITY: STEP TO THE YES!

Welcome everyone to the meeting and explain that science, technology, engineering and math will be the focus of this International Day of the Girl instant meeting. Emphasize that in one way or another, everyone uses STEM in their daily lives. The purpose of this activity is to show girls how they are already engaged with STEM – in some cases, without even knowing it.

To start off, have each girl think about how she uses or interacts with science, technology, engineering and math on a daily basis. It could be in the classroom as a “subject,” but it could also be as simple as opening a door (engineering), using an MP3 player (technology), or baking cookies (math and chemistry), etc.

For this activity, come up with a list of several questions that relate to STEM. Consider the following options:

- Have you ever built something out of Lego?
- Do you know how to use a computer?
- Did you ride in a car today?
- Did you turn a light on or off today?
- Did someone make toast for breakfast this morning?
- When your hair is wet do you dry it with a blow dryer?
- Have you ever baked cookies or a cake?
- Have you ever gone to a store, bought something and got change?
- Do you have a piggy bank?



Try to focus your questions on how girls may have engaged with STEM that day. Make sure you have a variety of questions that cater to all areas of STEM and include enough diversity that will inspire both “yes” and “no” responses.

To begin the game, have your unit gather together on one side of the room and ask everyone to face the centre. Once they are ready, call out a question from the above list, or your own set of questions. Any girl who can respond “yes” to the question should take one step towards the other side of the room. Any girl who can respond “no” to the question remains standing where they are.

Continue reading out the questions one at a time. As girls respond “yes” they should continue stepping towards the other side of the room. If they respond “no,” they should stay where they are. Continue doing this until all the questions have been read out loud or until girl(s) have made it to the other side of the room.

At the end of the game, girls will likely be scattered throughout the room, with the majority of them having moved towards the other side. Have a conversation that reinforces the idea that they all use science, technology, engineering and/or math in their daily lives, even if they didn’t realize it at first. Ask them to look at the group and see how many of them are close to the other side of the room, compared to where they started off.

≡ **CONTINUE** your meeting by selecting any four of the STEM activities below. ≡

SCIENCE

Young girls are often incredibly inquisitive and eager to explore and experience new things. Science is a wonderful way to fulfill their curiosity in a very hands-on way! Learning about science doesn't have to feel like school – it can be fun, engaging and educational all at the same time.

ACTIVITY #1: MILK PAINTING

This activity is perfect for girls to make art while learning about chemical reactions.



MATERIALS:

- Milk (or soy or rice milk if using dairy is a concern in your unit)
- Dish soap
- Q-tips (one for each girl)
- Food colouring (multiple colours)
- Plastic plates (ideally with an edge so the milk stays in the plate; you can also use a wide, shallow bowl)
- Newspaper (to keep things from getting too messy)
- Sheets of white watercolour paper (optional)

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Prepare an area where girls can paint and make a bit of a mess. Give each girl a plate or bowl to work with. Pour enough milk to fill the bottom of each bowl or plate (about 2.5 cm). Put two drops of food colouring into the milk and then repeat this for all the colours you are using. Make sure the drops of colour are spread out throughout the milk and are not touching. The more variety of colours that you use in each plate, the more fun the colouring will become.

Have each girl dip a Q-tip into the dish soap; just a small amount on the end of each Q-tip should do. Next, tell each girl to lightly dip her Q-tip into the drops of food colouring in the milk. Initially the colour will burst as soon as the dish soap hits it. The colours will eventually expand and start to blend together, creating little rivers in the milk. Girls can continue dipping their Q-tip in soap, and then the colours, until they eventually blend together



Take it a little bit further! Once they have created beautiful designs of colour in their milk (and before the

colours have blended together) have them place a piece of water colour paper into their plate/bowl. Ask them to count to five, and then slowly remove the sheet and place it on the table to dry. This will help them to create beautiful designs using the milk and colours.

You can watch this video to see exactly how it works: <https://www.youtube.com/watch?v=SCbpEuhuoYg>

HERE'S THE SCIENCE!



Following the activity make sure to explain the science behind it. Milk contains lots of different molecules including fat, protein, sugars and vitamins. If you touch a clean Q-tip into the milk and food colouring, not much would happen (feel free to try this!). But when you introduce dish soap to the milk, a few different things start to happen all at once. First, the dish soap lowers the surface tension of the milk. **Surface tension** is what keeps liquids stuck together; for example when you see a drop of water holding its drop shape, that's possible because of the surface tension. When the surface tension is lowered, the food colouring is able to flow freely throughout the milk, creating rivers of colours!

This activity was adapted from chemistry.com and babbledabble.com.

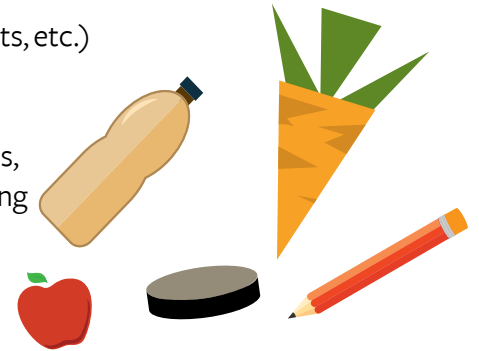
ACTIVITY #2: FLOATERS AND SINKERS

Use this activity to learn about density, a basic concept in chemistry and physics.

MATERIALS:

- A collection of objects that can get wet (different shapes, sizes, weights, etc.)
- Two large buckets filled with water (one per group)

Have each girl bring a variety of objects to the unit meeting. Things like: pencils, rubber balls, rocks and stones, fruits or veggies, pinecones, branches – anything they can think of. You and your co-Guiders might also want to bring a stash of items just in case you need extra. Make sure that the girls know that the items might get wet!

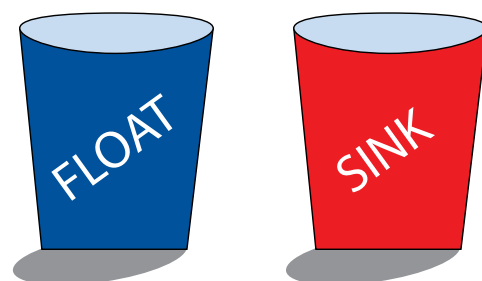


Put all the items brought to the meeting into a big pile in the middle of the room. Let the girls explore the items – pick them up and examine them. As they do, have a brief conversation about the objects. What are they? What sizes are they? Are they all the same weight, or do some weigh more than others? This will give the girls a chance to think about and guess whether the objects will sink or float.

Split your unit into two groups: one group will be the Floaters and the other group will be the Sinkers. Invite each group (perhaps one at a time to avoid confusion) to collect the items that they think will correspond with the name of the group they are in. So, for example, girls in the Floaters will need to collect items that they think will float when placed in water. And the Sinkers should select things they think might sink. Make sure to limit how many items each group takes so the Floaters and the Sinkers have an equal number of objects. Perhaps count all the items beforehand and say “each group should take 10 items,” or similar. Of course, not all the items need to be used.

Once the items have been distributed have each group gather around a bucket of water and drop items into the water one at a time to see if it floats, or sinks. If possible, have one or two girls keep track of what items float or sink on a piece of paper. The Floaters should track which ones float, and the Sinkers should track which ones sink. Once they have tried out each item, come together and compare: were there many items that sank? Floated? Take a minute to mix up the items and the groups if you want and try it again!

For older girls you can have them create an additional “Will float then sink” group for objects that might start off as floaters, but then absorb water and begin to sink, or those that will float if placed in the water gently but might sink if they are thrown in.



HERE'S THE SCIENCE!



Gather the girls back into the larger group. Take one of the items that floated, and one that sank, and compare them. Ask the girls to consider why one might sink, and why another would float. Pass the objects around and let everyone take another look. Explain that density is how solid something is. A rock for example is very solid, whereas a balloon is not. An object that is less dense, like a balloon, will float more easily than an object that is more dense, like a rock.

For older girls you can explain that a **molecule** is the smallest unit that makes up all the stuff around you. Everything from your desk at school, to the pencil that you write with and the books that you read, are made up of tiny little molecules. Molecules are so small that they cannot be seen with the naked eye. The closer together the molecules are that make up an object, the denser the object will be. The molecules that make up a balloon, for instance, have a lot of space between them and because of this they do not have much weight. Molecules in a rock, however, are very close together which is what makes it so dense.

ACTIVITY #3: COOKIE EXPLORATION

Science can be fun – and tasty! Use this activity to encourage girls to take a step back and observe a familiar object from the lens of a scientist.

MATERIALS

- Two store-bought chocolate chip cookies per girl (you can adjust these to other baked goods if there are food allergies/dietary restrictions in your unit)
- Coloured construction paper (one piece per girl)
- Pencils (one per girl)
- Magnifying glasses (optional)

Give each girl a piece of coloured construction paper and a pencil to record her observations. Ask them to draw a circle in the middle of the construction paper. Once everyone has done this, hand out a cookie to each girl and tell them to place the cookie inside the circle on the paper. Then ask the girls to stand with their hands behind their backs (this will help prevent them from sneaking a bite of the cookie!).

Tell the girls that they will be using ALL of their senses to examine this cookie. Explain that we have five senses: sight, smell, hearing, touch and taste and that these senses are often explored through scientific experiments. While looking at the cookies on the paper, ask: “What do you **see** when you look the cookie?” At this point the girls should share what they observe about the cookie: its size, shape, colour, contents, etc. If you have magnifying glasses, encourage girls to take an even closer look! Older girls should document these comments on their paper.



Next, have the girls **smell** their cookies. They should share what they smell: sweetness, chocolate, butter, etc. Again, those who can should write down these observations, while younger girls can just share out loud with the group. Then ask them to **listen** to the cookie. Can they hear anything? Presumably no, however, scientists must use all their senses to properly investigate! Then, ask the girls to pick up their cookies. They should **touch** them and take note of what they notice. It might be flat, bumpy, crumbly, etc. While they are holding and touching their cookies they should also estimate how many chocolate chips (or raisins, etc., depending on the baked good) are in the cookie, and make a note of this number on their paper.

Once they have recorded all their observations and estimated how many chocolate chips are in their cookie they should break the cookie apart and try to count all the chocolate chips to determine which number is higher: their estimated number or the actual number.



Remind the girls not to eat their cookie or the chocolate chips because this is a scientific experiment and they shouldn't tamper with scientific inquiry. Girls can also add up all the chocolate chips from all the cookies to see how many there are all together!

If your cookie doesn't have anything in it (such as chocolate chips or raisins) you can have girls break apart the cookie to discover how it comes apart. For example: Is it crumbly? Does it snap when it's broken, or bend? Is it soft?

Since all the cookie pieces have been handled, make sure to throw out all the chocolate chips and crumbs. Explain that this was an experiment and since the cookie bits have touched the paper, their hands, and likely the floor and the table, they need to be thrown out.

Finally, hand out the second cookie to each girl and tell them that they need to use their last sense: **TASTE!**

TECHNOLOGY

Technology is one of the most exciting fields to study and work in, as new technology – from devices we use in our homes and apps to more eco-friendly cars – are being created and shared every day. Social media, smart phones, school and work all depend on technology and the advances that are achieved by the individuals working in the field. Exploring and tinkering with technology can be an eye-opening experience and a fun way to inspire girls to learn more about this field of study.

ACTIVITY #1: STOP MOTION VIDEOS

Keep in mind if your video is less than 60 seconds long you can share it on Instagram!



MATERIALS:

- Two pieces of form core, or cardboard boxes (painted white) as the background (one per group)
- Variety of objects to make video (toys/dolls/figurines/stuffed animals, etc.)
- Smart phone or tablet (one for each group if possible)
- Stop motion animation app

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First ensure that you have downloaded a stop motion app on to each smart phone or tablet. There are a variety of free options available to download. Once that is complete, create a simple background to film your video on by attaching two pieces of cardboard together to create a 90 degree angle. Or simply lean one piece of the background against a wall or object, and place the other on a table directly in front.



Split your unit into groups of four or five. You will need a background for each group. If multiple backgrounds aren't available, groups can share or collaborate on multiple videos as a unit, or take turns working one group at a time.

When the groups have been created, ask them to discuss what type of video they want to make. What toys or objects will be in it? Will there be a theme? What will the toys and/or objects do, and how will they move?

Once they have decided what their video will entail, have them place their objects in front of the background and take a photo on the smart phone or tablet. They should then move the object(s) slightly (as they discussed), and take another picture. Girls should repeat this process 10 times and continue to take photos. Once they are satisfied with all the movements, each group can play back the sequence in rapid progression using the app, and watch the object(s) move across the screen! If necessary, one of the Guiders can do a quick demonstration before the girls begin to show them how to move and film things.

ACTIVITY #2: TOY HACKERS

With this activity, girls can turn their old toys into new creations! As cool as this may sound you and your unit might be wondering what this has to do with technology. Well, in order to create new games, toys and inventions, we first need to understand how things work, and how they can be changed and improved. Giving old toys a new life is the first step!



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MATERIALS:

- Toys (these can be second-hand or donated, or toys that your unit no longer plays with)
- Scissors
- Duct tape
- Glue gun
- Safety pins
- Screwdrivers (optional)
- Other objects (wheels, blocks, wood pieces, etc.)
- Craft supplies (glitter, markers, fabric, ribbon, pipe cleaners, colours paper, craft foam, etc.)



Have each girl begin by deconstructing the toy she's working with. She can cut it up, pull it apart, poke holes in it, remove certain components – whatever she wants. You may want to bring in a few extra inexpensive toys from a second-hand or dollar store, so that girls can use bits and pieces of them to attach to their own. Also, girls should be encouraged to share pieces of their deconstructed toy that they may not be using. Younger girls may need support and supervision from a Guider.

Once they have disassembled their old toy, the creativity really starts! They can glue on new objects, safety pin an additional arm or leg, add glasses, a new base, wheels, colour, anything! Their new toy can look entirely new or have a new purpose. For example, a stuffed animal might become part of a race car; a firetruck could become a space ship, or a flower a superhero! The options are endless, and the more objects or materials that are available, the more unique each toy will become. Once completed, each girl should think about how her toy started off, and what she was able to create using new ideas and tools.

For older girls, feel free to add old technology to this activity. They can bring in old CD players, cassette players, old computer mouse's, etc. and take them apart with screwdrivers to come up with something entirely new!

This activity was adapted from ladieslearningcode.com.

ENGINEERING

If you've ever wondered what engineering is, it's really all about making a difference in the world we live in. Whether it's helping to create new medicines, preventing and controlling pollution, developing new technologies or improving our cities and communities, engineering is integral to helping create a better, safer and more efficient world.

ACTIVITY #1: ELECTRIC SPIN!

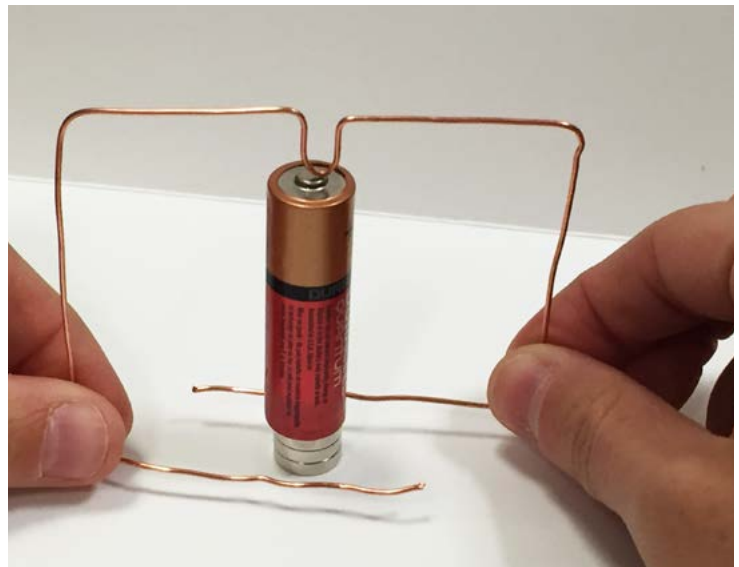
We use electricity every single day. Turning on a light switch in the bathroom, using your computer, turning on your flashlight at camp, or toasting your toast in the morning are all basic things that require electricity. This activity is a fun, hands-on way to introduce girls to a few basic electricity and engineering concepts. There are a few materials that might need to be purchased, so you will need to plan ahead if your unit chooses this activity.



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This activity might be best suited for older girls (Guides, Pathfinders and Rangers) and will require some assistance from Guiders. You may also want to do this activity in advance and have a model ready to show the girls before they start making their own. This will also help you to troubleshoot any issues that come up.

This activity can be done individually, or in small groups, depending on what you think would be best for your unit.



MATERIALS:

- AA batteries (enough for one per girl)
- Copper wire, approximately one 40 cm piece per girl (this can be estimated based on the template outline)
- Neodymium disc magnets (three per girl/group) (*These can be found at Walmart, Home Depot, craft stores, and even some dollar stores; they look like small watch batteries*)
- Pliers and wire cutters (strong scissors will also do the job)
- Copies of the electric spin template on page 22 in Appendix (enough for each girl/group)

SAFETY TIPS:

The magnets required for this activity are very strong and should not be used by young girls without proper supervision. Guides, Pathfinders and Rangers are more appropriate ages to handle these materials and in some cases will also require assistance.

The battery might get warm when setting up the wire, but it shouldn't be hot. If this happens, you are not doing it correctly. Make sure that the wire isn't wrapped around the magnets or battery, and that it can flow freely. See the troubleshooting tips below for help on how to get everything working.

STEP ONE: Hand out the piece of copper wire to each girl or group.

STEP TWO: Lay the piece of copper wire on the template, and bend the wire to match the same shape and size as the template. You can do this by using pliers, or your hands, whichever is easier. Make sure that the ends of the wire are close to the magnets but are not touching them. This is important as they will be moving later. See the template, or [this video](#), for clarification.

STEP THREE: Once the wire has been bent to the correct shape, place three of the magnets on the negative end of the battery.

STEP FOUR: Place the wire you've bent into shape on top of the battery (the positive end). The bottom of the wire should be able to encircle the magnets. You might need to adjust your wire if it isn't long enough to do this.

STEP FIVE: Let go of the wire. If properly constructed the wire should begin to spin around the battery.

HERE'S THE SCIENCE!



These “motors” demonstrate a Lorentz force, which is generated when electricity moves through an electric field. The copper wire is conducting electricity from one end of the battery to the other, and as it moves it creates a force that causes the wire to spin around and around!

Once you have mastered this simple motor, try creating your own design! As long as the wire touches the top of the battery and the ends surround the magnets, you can create any design you want. You can even accessorize it with art supplies!

TROUBLESHOOTING TIPS:

If your design doesn't spin:

- Try turning your magnets upside down/reversing them
- The AA battery life will run out quickly, so try swapping in another battery
- Make sure the bottom part of the wire encircles the magnets (not too closely), and without the wire ends touching each other
- Make sure the wire is free to move around the magnets and isn't too close to the battery

This activity was adapted from dabbledabble.com.

ACTIVITY #2: MARBLE ROLLERCOASTER

Engineers design and build everything from bridges, buildings and roads to airports, tunnels and even roller coasters! Invite your girls to make their very own rollercoasters out of toilet paper and paper towel rolls!

MATERIALS:

- Marbles/small balls
- Paper towel rolls, (five per roller coaster)
- Toilet paper rolls (three per roller coaster)
- Tape
- Scissors
- Markers (optional)

Distribute all the rolls to each girl in your unit. Girls can begin by decorating the rolls by drawing and colouring them. You can also use other craft supplies to decorate the rolls if you wish. This can be done in groups, or as individuals, so decide what is best for your unit. Once the rolls are decorated, the girls can start building their roller coaster!



Next, girls can begin cutting and attaching the rolls to create tubes for their marbles. The key is to be as creative as possible and to create a design that allows a marble to travel from Point A to Point B to Point C, and so on. An example rollercoaster is provided below with step-by-step instructions; however, you can also encourage girls to experiment by creating their own design.

Once the structure is complete and stable, girls can begin dropping marbles (or small balls) through the roller coaster they've just constructed.

STEP-BY-STEP INSTRUCTIONS:

STEP ONE: Tape two of the paper towel rolls together, end to end, so that they stand tall.

STEP TWO: Tape together one of the toilet paper rolls and a paper towel roll, end to end.

STEP THREE: Tape together two toilet paper rolls, end to end. These will be your three separate towers. Each tower should be a different height.

STEP FOUR: Take two of the paper towel rolls and cut them in half horizontally so that you end up with four "roads" for the marbles to travel on (see the image for clarification). Each roller coaster will only require three "roads" so you will have one extra when you do this that can be shared with another girl.

STEP FIVE: Cut one small square at the top of the tallest tower (see image).

STEP SIX: Cut two squares out of the medium sized tower (one near the top and one in the middle of the tower).

STEP SEVEN: Cut two squares out of the smallest tower (one near the top and one at the bottom)

STEP EIGHT: Rest each "road" in the square hole and link it to another tower, resting it in the opposite square hole. Every road should connect with two towers.

MATH

Addition, subtraction, multiplication and division – these are just some of the things that we think of when we hear the word “math.” But math is so much more than that, and it extends well beyond what you do in school. Each and every day we use math – whether it’s to count the number of flowers in a garden, figuring out how many candies we can buy with the money we have, or measuring a piece of paper to build a paper airplane. Every day, we rely a lot more on math than you might think.

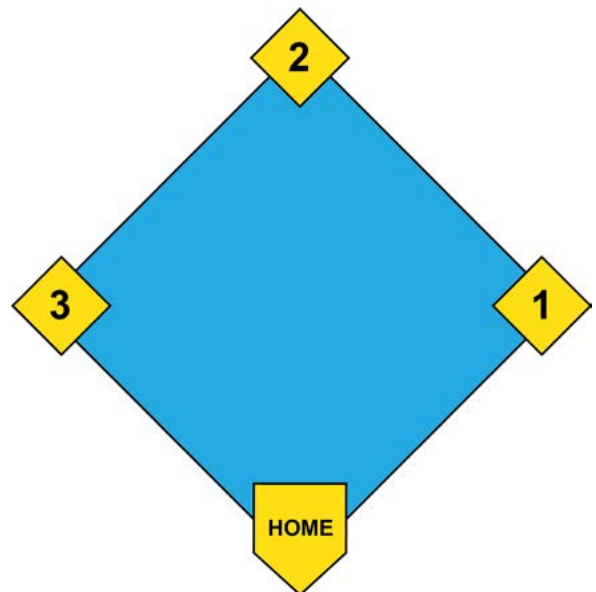
ACTIVITY #1: MATH BASEBALL

MATERIALS:

- Two dice
- Baseball board game template (you can print, or copy the example onto poster board)
- Number cards (small pieces of paper numbered 0-12)
- A playing piece for each player (beans, coins, etc.)

Split your unit into two teams and have them create fun team names (related to math if possible). Each girl gets a token that represents her as a player. You may want to differentiate these tokens by using various colours/objects for each team.

Shuffle your number cards and leave them face down to the side. Select the top three cards and place one on each base (1st, 2nd and 3rd), but not on home plate. These numbers will change each inning and you can do this randomly by shuffling the cards and picking out three new numbers. Your baseball template will look something like this figure on the right.



BATTING

Determine which team will start first. Each player on the team will “go up to bat” by rolling the dice. The goal is to get on a base by rolling numbers that equal one of the numbers you’ve placed on the base. Girls can add or subtract their dice to get a number. Using the above template as an example, if a girl rolls a “6” and a “3,” she would move her token to 3rd base ($6+3=9$). If she rolls a “6” and a “2,” she could move her token to 1st base ($6+2=8$) or she could move her token to 2nd base by subtracting the numbers ($6-2=4$). For older girls, you can use multiplication and division too. If a girl rolls her dice and cannot combine them to make a number that is on one of the bases, then she is out. If a player rolls a dice combination that creates two numbers that are on the board, she will have to select which number she wants to move to.

If a girl creates a number combination that will take her to a base that another player is already on, then she bumps that player forward to the next base. The players continue to move around the bases as they are pushed forward. When they land on home, they've scored a run and will wait for their next turn "at bat." You can create a scoring chart that records the number of runs each team gets per inning.

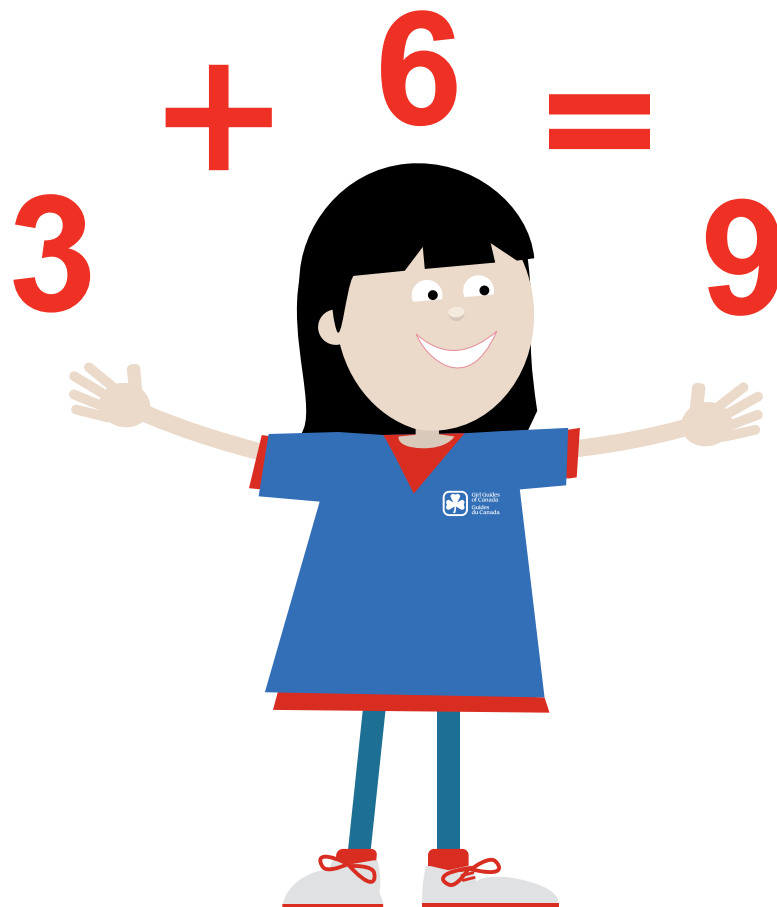
Younger girls who aren't comfortable adding or subtracting can simply look at one of the 2 numbers that are rolled on the dice and move bases according to those. And keep in mind if you have a large unit you can use more than one board game and have multiple games going at one time.

OUTS AND INNINGS

The first team will have a turn at bat and players will continue batting until they get three outs. After three outs, the second team gets their turn to bat until they reach three outs. When each team has had a turn to bat, that equals one inning. At the end of each inning, remove the number cards on the bases and replace them with new cards from the pile. The game can last three innings or more, depending on time.

The team with the most runs wins.

This activity was adapted from education.com.



ACTIVITY #2: HOMEMADE CALCULATORS

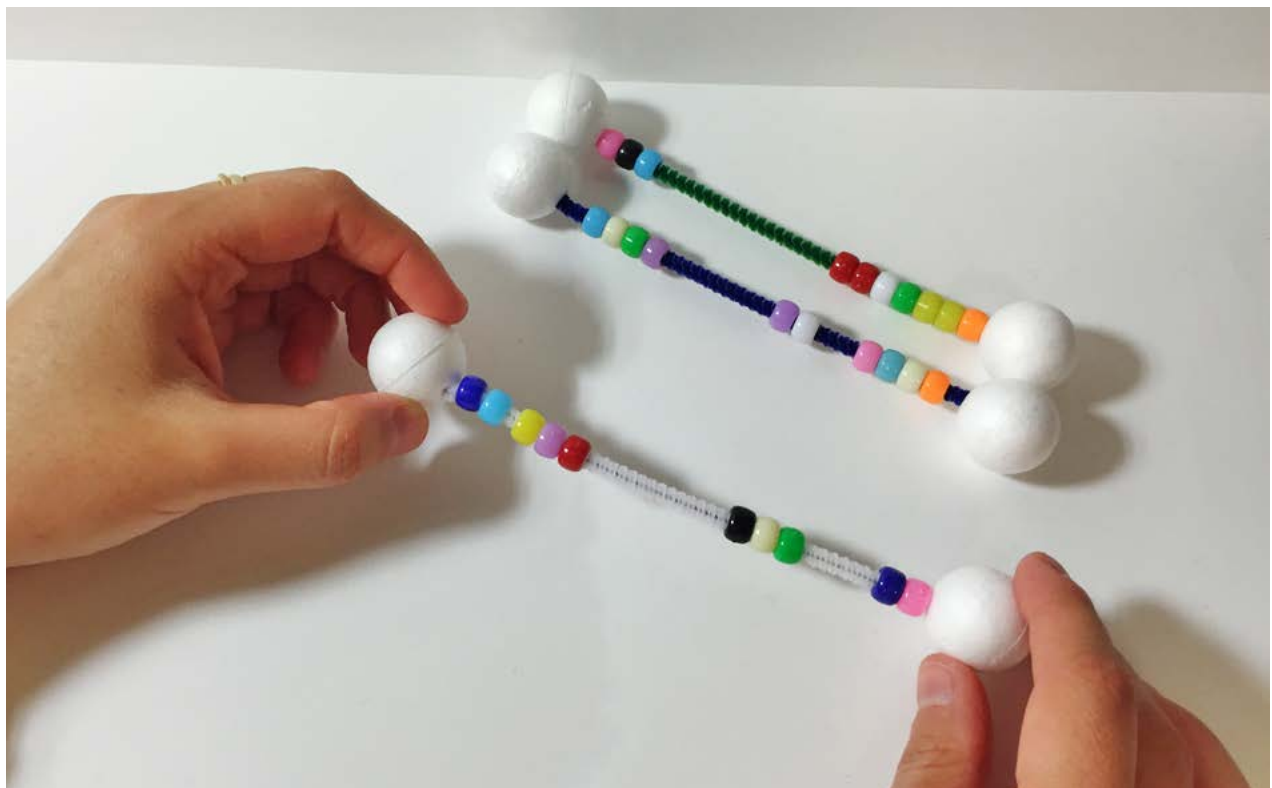
Learning how to add and subtract is a fundamental part of math that can be applied to many everyday tasks. Sparks and Brownies can practice their adding and subtracting skills by creating their very own calculators!

MATERIALS:

- Pipe cleaners (one for each girl)
- Small plastic beads (10 for each girl, a variety of colours)
- Large beads (two for each girl)

Have each girl string the 10 coloured beads on her pipe cleaner. Once she has done that, she should put one of the larger beads onto each end of the pipe cleaner to keep the other 10 small beads from sliding off. You may also need to fold over each end of the pipe cleaner to ensure the beads don't come off.

Start off by having the girls count the number of beads on the pipe cleaner and sliding them from one side to the other as they count. Then move to adding and subtracting. Have the girls push all their beads to the left side and explain to the girls that each bead is worth one. Then ask them simple addition questions, such as what is $4 + 1$. Teach them how to push four beads over the right hand side of the pipe cleaner and then ADD one by pushing another bead over. Then ask them to count how many beads they have on the right hand side and explain that they just added $4 + 1$. Make a list of simple math problems that they can practice with.



ACTIVITY #3: SCAVENGER HUNT



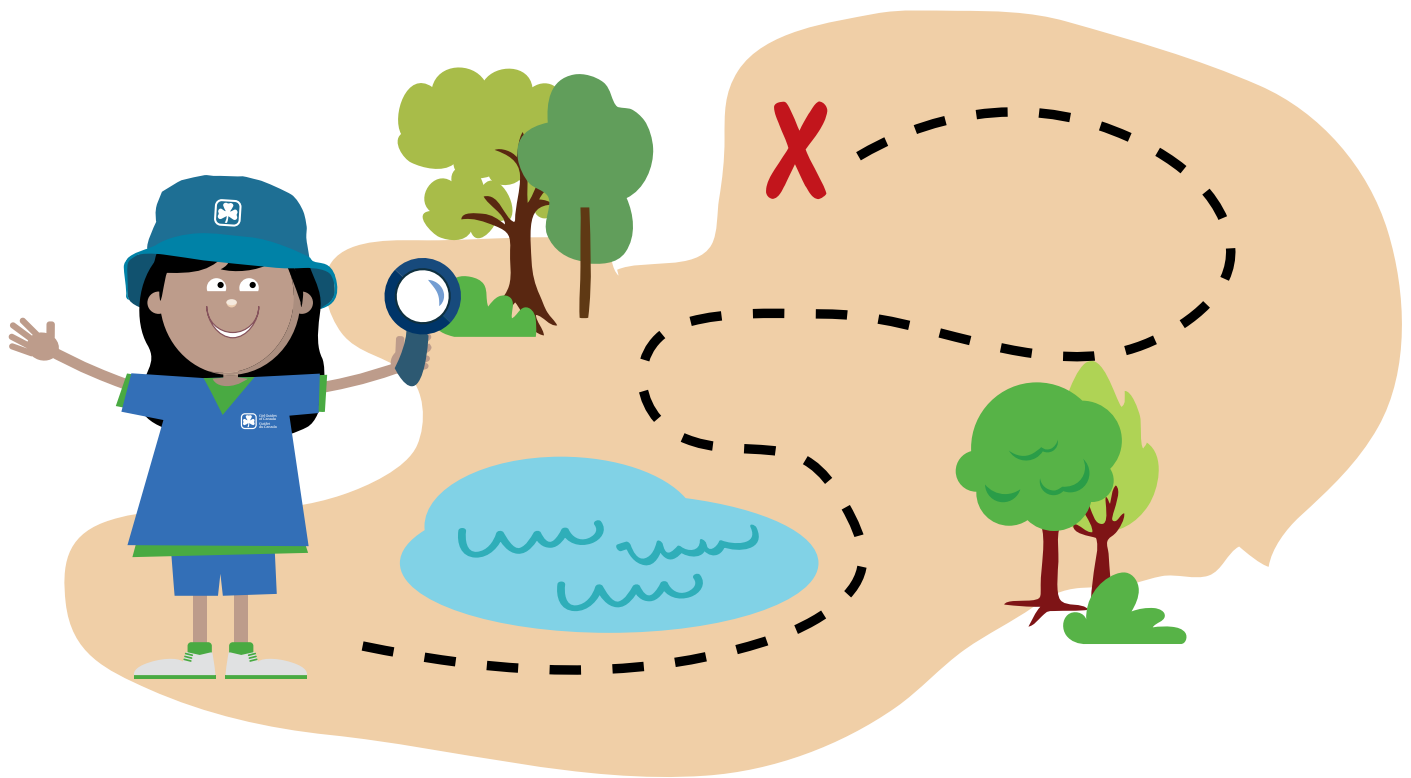
MATERIALS:

- Scavenger hunt handout, see page 23 (one per person/group)

Girls can do this individually, or in small groups. Give each girl or group a copy of the scavenger hunt handout and tell them they will be hunting for math! Using the handout, they should collect the different items identified. This would also be a great activity to complete outside, weather permitting.

For younger girls, Guiders may want to split the unit into large groups (one Guider per group) so they can help the girls identify each item that they need to find. Guiders should feel free to add their own items to hunt for.

After each group has completed the “hunt” tell them to come back to the meeting space and review everything they have found, until each group has returned. You can debrief the activity by asking the girls what they learned through this hunt, and how they think it relates to math. Remind them that math is a part of everyday life and does not just live in the classroom!



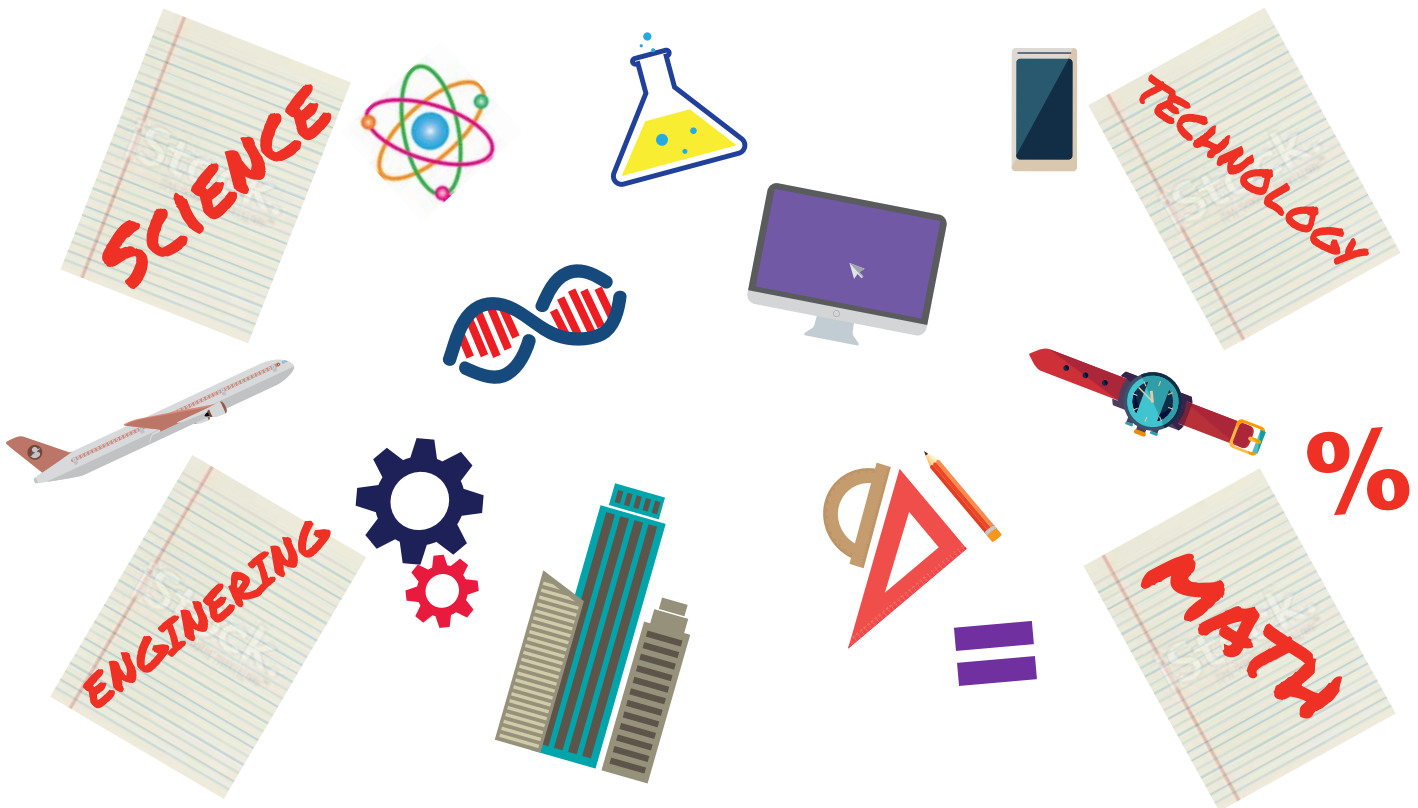
≡ **CONCLUDE** your instant meeting with the following Closing Activity. ≡

CLOSING ACTIVITY: MIND MAP

Take four sheets of paper and write “science” in the middle of one of the pieces of paper, then “technology,” “engineering” and “math” on the other three sheets. Each piece of paper should have one of these four words in the centre.

As a unit create a “mind map” of each of these words. Using crayons, markers, drawings, stickers, etc., ask the girls to consider how they are affected or impacted by these different subject areas. Having just completed a unit meeting on STEM, are they thinking about these areas differently than before? Did they learn something new, and if so, what? Are they inspired to try something new related to STEM? Do they still have questions? When they think of engineering are they picturing buildings, roads, and bridges? Ask each girl to draw things they use in their daily lives that come from these fields, or even their favourite things related to STEM, on each piece of paper to help create a large mind map of STEM!

For younger girls, instead of using words to describe how they are impacted by science, technology, engineering and math, Guiders can list different activities (cooking, driving, playing a sport, turning on a light switch, riding a bike, etc.) and have the girls run to the other side of the room if they think there is a connection to science, technology, engineering or math. If there isn't enough a space to run across a room, they can stand up instead. This is a fun way to close the meeting in an active and engaging way.

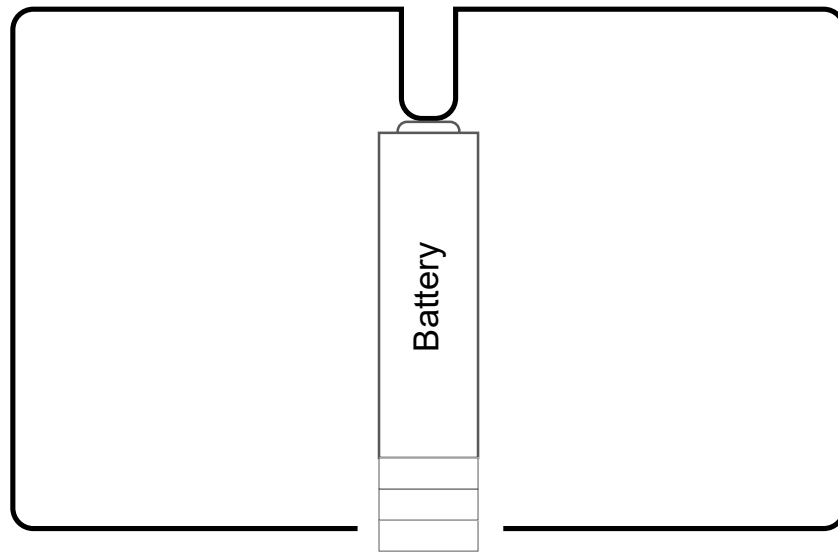




APPENDIX

Electric Spin Template	22
Scavenger Hunt	23
Notable Women in Science, Technology, Engineering and Math	24
Additional Resources	26

ELECTRIC SPIN TEMPLATE



SCAVENGER HUNT

<p>FIND AN OBJECT WITH SIX SIDES</p> 	<p>FIND FIVE THINGS THAT ARE GREEN</p> 
<p>FIND SOMETHING SQUARE</p> 	<p>FIND SOMETHING AS LONG AS YOUR FOOT</p> 
<p>FIND TWO OF THE SAME THINGS (a pair!)</p> 	<p>FIND SOMEONE WITH MORE LETTERS IN THEIR NAME THAN YOURS</p> 
<p>FIND SOMETHING TWICE AS BIG AS YOUR HAND</p> 	<p>FIND THREE OBJECTS THAT EACH HAVE DIFFERENT WEIGHTS</p> 
<p>FIND SOMETHING THE SIZE OF AN APPLE</p> 	<p>FIND FOUR OBJECTS THAT HAVE DIFFERENT HEIGHTS</p> 



NOTABLE WOMEN IN SCIENCE, TECHNOLOGY, ENGINEERING AND MATH

KEREN ELAZARI, ISRAEL

Keren is a cybersecurity expert from Tel Aviv, Israel. Formerly an internet hacker, Keren is now an internationally-celebrated speaker and author on cyber security and privacy. She has worked with leading Israeli security firms, government organizations and companies to help identify online security threats and is working towards embracing hacker culture and utilizing these important skills. You can watch her TED talk here: http://www.ted.com/talks/keren_elazari_hackers_the_internet_s_immune_system?language=en

NADINE HARIK, U.S.

Nadine is the Engineering Manager at Pinterest. She helps oversee the company's web and mobile web teams. Prior to working at Pinterest, Nadine worked for Google, another huge tech company known for making waves in the industry. Nadine, along with several other female engineers at Pinterest, talk about their experiences in the field, here: <http://www.businessinsider.com/pinterest-women-engineers-2014-3>

NIVATHA BALENDRA, CANADA

Nivatha is a young Canadian who was awarded the 2015 Top 20 under 20 Award from Plan Canada for her work in environmental research. Her research focused on finding solutions for cleaning oil spills, and also earned her the World Economic Forum Prize at the Intel International Science and Technology Fair. Learn more about her, and other Top 20 under 20 winners, here: <https://plancanada.ca/Nivatha-Balendra>

MARYAM MIRZAKHAMI, IRAN

In 2014 Maryam became the first woman to be awarded with the Field Medal, the highest prize a mathematician can win. She made "striking and highly original contributions to geometry and dynamical systems." Following her acceptance of the award, Maryam said that she would be happy if her win can help encourage other young female scientists and mathematicians. To learn more about Maryam, go to: <http://motherboard.vice.com/read/brilliant-female-mathematicians-youve-never-heard-of>

KAY TYE, U.S.

Kay Tye is a neurologist and an assistant professor at the world renowned Massachusetts Institute of Technology (MIT) in Cambridge. Not only is she a scientist, but she has a passion for breakdancing, and is dedicated to engaging other girls and women in the field of science. Her goal is for her current studies to be used to devise ways to treat disorders such as anxiety, depression and addiction. You can learn more about Kay, here: <http://www.nature.com/news/from-the-frontline-30-something-science-1.12549>



SAMANTHA CRISTOFORETTI, ITALY

Samantha Cristoforetti is an astronaut, air force pilot and engineer. She travelled to the International Space Station (ISS) in 2014-2015 and she currently holds the record for the longest single space flight by a woman. Learn more about her, and other women in science and technology, here: <http://www.scwist.ca/weblinks/women-in-science-and-technology/>

SUMITA BASU, U.S.

Sumita Basu is a Strategist and Business Development Manager at Intel. Intel designs and builds essential technologies that serve as the foundation for most of the world's computer devices. Sumita completed her PhD doing experiments with the International Space Station. However, one of her most impressive accomplishments is inventing the world's first lead-free patterning process which is a fancy term for the world's first computer chip to limit the use of lead, a toxic substance. You can learn more about Sumita Basu by visiting: <http://societyofwomenengineers.swe.org/images/awards/2015/pdf/Basu.pdf>



ADDITIONAL RESOURCES:

For additional information on girls and young women involved in STEM, check out the organizations below. You may also find additional activity ideas for your unit.

Youth Spark Hub: <http://www.microsoft.com/about/philanthropies/youthspark/youthsparkhub/>

Girls in Information and Communication Technology: <http://girlsinct.org/>

PBS Kids: <http://pbskids.org/scigirls/>

Engineer Girl: <http://www.engineergirl.org/>

Made with Code: <https://www.madewithcode.com/resources/>

Code: <https://code.org/>

Canadian women in STEM: <http://www.scwist.ca/weblinks/women-in-science-and-technology/>

Girls Who Code: <http://girlswhocode.com/>