



## ACTIVITY GUIDE WEEK 2 - EXPLORE, DESIGN, CREATE GRADES: 6-8

Hello Parent/Guardian,

We hope you are doing well. Here is a guide full of fun activities for your child to try out this week at home! This educational guide is meant to be engaging and fun for your child. Complete the tic-tac-toe board with them on the front sheet, or challenge them to complete each of the activity squares. Included you will find: stories to read; letter, and sound activities; science and art activities; and some great math graphing practice. This week's theme is plants and animals We hope you enjoy your activity guide for week 2.

# Kent ISD



In partnership with





**Grades 6-8**  
**Week 2: PLANTS AND ANIMALS**

<p><b>STEM:</b></p> <p>Design a Bird Nest:</p> <p>Use materials you find outside to design a nest for a bird. Why were these the best materials for a nest? Document your results.</p>	<p><b>READ:</b></p> <p><b>Choose 1:</b></p> <ul style="list-style-type: none"> <li>- A real book about an animal</li> <li>- A fiction book about an animal</li> <li>- One of the stories in this packet</li> </ul>	<p><b>VOCABULARY:</b></p> <p>Review the list of words and definitions related to plants and animals, then draw a picture next to each vocab word. The picture must describe the word.</p>
<p><b>WRITE:</b></p> <p><b>Choose 1:</b></p> <p>-Draw an animal you have never seen before, but find interesting. Why do you find this animal interesting? What are the animal's strengths and weaknesses?</p> <p>-Suppose you are going on a full day hike. What items do you need to pack to ensure you have a successful and safe hike? Where will you go?</p>	<p><b>FREE SPACE</b></p>	<p><b>WEEKLY CHALLENGE:</b></p> <p>Play- How to Close 100 Game!</p> <p>You will need 2 dice. Can you find dice from another game in your house? Perhaps Monopoly or Sorry?</p>
<p><b>MATH:</b></p> <p>Create an emoji graph! You will need help from a parent/guardian/older sibling for this activity!</p>	<p><b>SCIENCE:</b></p> <p>Discuss why the grass might turn brown during drier months and why grass needs to be mowed after it has rained for several days. Do you mow the lawn for your family? If not, maybe you can ask to learn how!</p>	<p><b>LANGUAGE:</b></p> <p>Go on a hike or nature walk with a family member. Ask them their favorite parts about being outside in nature. Look for animals and bugs. Take a picture of your favorite style tree, and sketch it out later within this packet.</p>

# Seeing the Invisible: Mutualism and Plant Reproduction

by ReadWorks



Imagine for a moment that you are in a field of waving grass. At the edge of the field there are trees of all kinds, including maples and crabapples, and in their branches, birds are chirping. Flowers nod in the breeze. Daisies are dotted throughout the field, and blackberries are growing along a small hillside. Everywhere there are birds. It's a tranquil and beautiful spring day. Can you describe how the different plants and animals relate to each other? Do you know how they ensure there will be a new generation of plants and animals beyond themselves? While it may seem invisible at first, what's happening in the field is a complex set of interactions between organisms to ensure the reproduction of the plants that make up the food web.

Our Earth is alive with organisms carrying through their life cycle of birth, reproduction and death. All plants, animals and other living things reproduce, resulting in new offspring or organisms. Sometimes this reproduction is unassisted, such as within bacteria, and sometimes it requires the assistance of others.

Sexual reproduction results in genetically new offspring from the fusion of male and female sex cells. Humans reproduce sexually and their offspring are genetically a combination of their parents' features and DNA. Asexual reproduction produces organisms identical to the parent, which simply splits in two. Many plants, like onions, potatoes and carrots, reproduce asexually. Some, like blackberries, can reproduce in either way—sexually, by sending shoots into the ground to form new bushes, or asexually, through their flowers. Which way a plant or organism reproduces is the result of the organism's interaction with other organisms, climate and even weather over a long period. Each

organism has mastered its individual survival and that of its species, which is why reproduction is an important part of the life cycle for any organism. When reproduction is disrupted, such as through the loss of bees or habitat, a species may struggle to survive, sometimes even becoming extinct.

## How It Works

In angiosperms (the scientific name for flowering plants), the flower is the reproductive organ. All flowering plants are able to reproduce sexually. Hermaphrodite flowers-called perfect flowers -contain both male and female sexual organs. Imperfect flowers contain only male or female sexual organs. Similarly, some plants have both male and female flowers while others have only one. Each plant is a result of unique conditions, remember, so they can be different from each other.

Many flowers smell good and have bright colors to attract the birds, insects, and other animals that will help with pollination. Pollination occurs when pollen (male sex cells) fertilize the ovules (female sex cells) deep inside the flower. While some flowers or even plants can self-pollinate, most need help from weather or animals to do it. Each plant has evolved to maximize efficiency and effectiveness of reproduction.

Nectar is a sugar produced inside flowers that attracts bees and insects-in fact, bees use it to make honey back in their hives. (Beekeepers sometimes grow only one kind of flower so that all the honey the bees make is flavored like that one flower.) When a bee dives deep into the flower it gets covered in pollen, which it will then deposit-hopefully-on the female reproductive organs of the next plant it visits while collecting nectar.

Flowers that rely on the wind for pollination are less likely to be bright colored, or produce nectar or a heavy scent, since they don't need to attract pollinators. For most of these plants, their anther-where the male sex cells are located-hangs outside their flowers. Remember the waving grass in the field? Pollen is easily blown in the breeze from the anther of these plants, which include wheat, corn and maple trees. Have you ever known someone allergic to pollen? In the springtime such allergies can be very cumbersome because there is literally pollen in the air we breathe.

## Seeds and Fruit

When an ovule is fertilized, it divides into different cells, and each fertilized cell becomes a seed. You may have noticed most seeds have a tough outer layer. This is called the seed coat and protects the seed. Inside each seed is an embryo and endosperm-a developing plant and its food source-so that a seed can be planted and immediately have the necessary ingredients to begin growing. The plant uses this food source until it grows leaves for photosynthesis and can produce food on its own.

An ovary of a plant can contain many seeds. A melon, for example, is an ovary with many seeds at its core. As the seeds mature, the walls of ovaries may change in taste and appearance to become attractive to animals. This is important because the animal will free the seeds as it consumes the fruit. Birds regularly eat berries, including the seeds in their protective seed coats. The seeds then pass through the bird's digestive tract and are released in the bird's droppings, often far from the original plant where they were consumed originally. Birds are very important for helping to spread seeds to new places. Similarly, in our example, the field deer may consume the crabapples and deposit crabapple seeds far from where they were consumed.

Did you notice that in the above examples all the organisms benefit from the interactions? Birds get food, for example, and the plant gets to find new ground for growing. Bees get nectar for their honey, and in return, the flowers get fertilized. The system is mutualistic, which means all organisms participating benefit from it.

## **Reproduction In Context**

Many scientists study the reproductive habits of plants to better understand how we can improve our food sources. In 2013, scientists found that chemicals like insecticides, used to prevent bug infestation, can actually harm the health of bees. When bees are unwell they do less pollinating, which results in fewer seeds and fruits, actually diminishing our food supply. Once designed to increase a crop yield by protecting the crop from insects, insecticides are now killing the very insects needed to pollinate the crops. Scientists are still studying the process, but the decline of bees worldwide is a global concern.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. How can plant reproduction be described?

- A. Plants reproduce in only one way.
- B. Plants reproduce in a variety of ways.
- C. Plant reproduction has no effect on animals.
- D. Plant reproduction always involves pollen.

2. What does this passage explain?

- A. This passage explains the life cycle of a deer and what happens when that cycle is disrupted.
- B. This passage explains sexual reproduction in human beings.
- C. This passage explains plant reproduction and its importance.
- D. This passage explains what the differences between apples and crabapples are.

3. Some plants need help to reproduce.

What evidence from the passage supports this statement?

- A. Some plants rely on bees to spread pollen from one flower to another.
- B. Some plants reproduce asexually by sending shoots into the ground to form new bushes.
- C. Insecticides are used to prevent bug infestation.
- D. Humans reproduce sexually, and their offspring receive traits from both parents.

4. What is the purpose of plant reproduction?

- A. to prevent bug infestation
- B. to produce nectar
- C. to seem invisible at first
- D. to create new plants

5. What is this passage mainly about?

- A. the similarities between birds that eat seeds and bees that gather nectar by flying from one flower to another
- B. the different ways plants reproduce and the impact of plant reproduction on other living things
- C. the similarities between the reproduction of bacteria and the reproduction of blackberries
- D. the different kinds of trees that are found in fields, including maples and crabapples

6. Read the following sentences: "Our Earth is alive with **organisms** carrying through their life cycle of birth, reproduction and death."

What does the word **organisms** mean?

- A. harmful chemicals
- B. living things
- C. asexual reproduction
- D. bright colors

7. Choose the answer that best completes the sentence below.

Plant reproduction is important to animals; \_\_\_\_\_, it is important to plants as well.

- A. such as
- B. in contrast
- C. as an illustration
- D. obviously

8. How do birds help spread the seeds of berries?

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**9.** How do birds benefit from spreading the seeds of berries?

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**10.** Explain how plant reproduction can affect other living things. Support your answer with an example from the passage.

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# Animal Influence

by Chris Hayhurst

## From trained therapy dogs to common house pets, animals can help us in many ways

It was just another school day in Albert Lea, Minn., but on this day, in this class, Jack\* was in trouble. In the past, among his peers, Jack had difficulty controlling his emotions at school. Ask him a question, and he'd become flustered or angry; try to get him involved, and he'd just shut down. This day, unfortunately, was no different. As Jack's classmates began their latest group activity, as one kid after another seemed to need his attention, it was happening once again. Jack was about to blow.

As his temper began to flare, Jack rose from his seat. He walked up to his teacher and reached into his pocket. Then, slowly, he did it: He handed her a ticket.

"It's a way for him to cope when he feels upset," explains the school's social worker, Kim Anderson. "Instead of using words, he just gives that ticket to his teacher, and he can leave to go see Poet."

Poet? "He's my dog," says Anderson. "A golden retriever." Poet, in fact, is a registered therapy dog. While he lives with Anderson on her farm, and he loves cats and especially playing fetch, Poet also has a job. And on this particular day, when the steaming student came in with his ticket, he did it to perfection. "I have this quiet corner in my office with beanbag chairs," says Anderson. "And so he came in and sat down, and Poet went right over to him." Within 10 seconds, says Anderson, Jack was smiling. "Within 15 minutes, he was able to process the situation and talk about his feelings and return to class."

*\*Name has been changed.*

### Paw Power

Poet's ability to heal-in this case, to help an upset student relax and talk-comes as no surprise to animal experts such as Gail Melson. "There is very good evidence that being with a calm and friendly dog lowers blood pressure and reduces feelings of stress," says Melson, a developmental psychologist and researcher at Purdue University in Indiana. "And when we reduce the stress in our lives, we're healthier." Well-behaved pets and trained therapy animals have the same effect, she says. "The animal doesn't really need to do anything. It's their presence that matters."



Courtesy Of Equi-kids Therapeutic Riding Program

*Volunteers at EQUI-KIDS make riding safe for kids with special needs.*

Therapy dogs, notes Melson, are used in all kinds of situations, from classrooms for the learning disabled to long-term care facilities where people receive personal and medical assistance around the clock. Even in school libraries, she says, trained dogs are increasingly being used to help self-conscious students feel comfortable reading aloud. With a dog by their side, explains Melson, the stress some students experience when they read in front of a teacher tends to just melt away. "Animals don't ask anything of you," she says. "There's that feeling of unconditional acceptance." House pets have a similar influence, says Melson. "They provide much of the same emotional and social support that we get from having people in our lives, like friends and family, who are close to us. We can't say that if you get sick a pet will help you recover faster. But it may make things easier, and in some respects it may do a better job than a person."

That has been Redmond, Wash., ninth grader Lulu T.'s experience exactly. Her Portuguese water dog, Daisy Mei, is a 30-pound fluff ball that Lulu describes as unbelievably gentle. Daisy Mei loves to cuddle, says Lulu, and is a great companion on days when she's feeling down, "especially after I do poorly on a test or something like that."

Six months ago, Lulu, Daisy Mei, and Lulu's father completed an intensive therapy-dog training program offered by a national organization called the Delta Society. Now, says Lulu, her favorite canine companion wears a badge that identifies her as an official therapy dog, and she and Daisy Mei spend at least one day a week visiting either special-education students at her school or elderly patients at a nearby hospital. "This one girl we saw, she would never smile, never talk," recalls Lulu. "And then one day I brought Daisy Mei in and everything changed-she started laughing; she told her to sit. It was amazing."

At the hospital, says Lulu, she's seen similar results. "We'll walk up to a person's bed, or to their chair, and Daisy Mei will just sit there, and I'll tell her it's OK to be pet by this person, and the patient will lean down and pet her and start talking and smiling. You can see the change in the patient right away-it's like this physiological response. It's really cool to watch."

"When you're with a loving animal," explains psychologist and animal-assisted therapy expert Aubrey Fine, "real biological changes take place." It doesn't matter whether it's a dog, a cat, or even a pet

lizard, notes Fine, who is a professor at California Polytechnic State University. If you're in a comfortable setting, and an animal shows you affection, the effects will most likely be the same: reduced heart rate, reductions in a stress-related hormone called cortisol, and an increase in a happiness-related neurotransmitter chemical called serotonin. Those healthy changes-in addition to the kinds of changes that Lulu sees in all the people Daisy Mei meets-happen thanks to the emotional bonds we experience with animals, says Fine. "Whether it's a trained therapy dog or your pet, it's that connection that matters."

## Horse Help

At EQUI-KIDS Therapeutic Riding Program in Virginia Beach, Va., making that human-animal connection is the point; only here, the animals are horses, and the kids have special needs. Many are autistic, says program director Kathy Chitwood. "Others have cerebral palsy. Some have Down syndrome; some have had strokes or cancer or blood disorders. Some are developmentally delayed, and many are from the foster system."

The program uses 18 highly trained horses, says Chitwood. The smallest is a pony the size of a big dog, while the largest is a draft horse-a breed so strong it's often used to pull plows across fields. When students ride, they do so with the help of several assistants. "Side walkers" offer support for the rider from the ground on either side of the horse. Another person leads the horse by its reins. And then there's a physical therapist, an occupational therapist, or a speech therapist-a healthcare professional who guides the rider through special exercises tailored to his or her needs. For someone accustomed to being in a wheelchair, says Chitwood, sitting on a horse as it's led around a ring creates the sensation of walking. Riding also builds confidence and core strength, she says. And for autistic individuals especially, time with a horse improves their ability to respond to directions and to express their emotions. "One man told us he'd never seen his son smile before," says Chitwood. "And then he came here and rode on a horse, and he smiled-for the first time."

## Get Involved

If you have a pet that you think would make a great therapy animal, start with the Delta Society. The group's Pet Partners program trains volunteers and their pets to visit libraries, schools, hospitals, and other facilities. The certification program that Washington teen Lulu T. and her dog, Daisy Mei, went through, Healing Paws, requires participants to receive 40 hours of training. It's a lot of work, says Lulu, but it's definitely worth it. "It's pretty intensive. You're in the class every day, and there are different scenarios you go through-interacting with patients, riding on elevators, those kinds of things. And then you get tested. It's hard, but it's also fun."

## Learn more:

- **Delta Society** (therapy, service, and companion animals): [www.deltasociety.org](http://www.deltasociety.org)
- **Professional association of Therapeutic Horsemanship International** (equine- assisted therapy): [www.pathintl.org](http://www.pathintl.org)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. What biological effect is present when an animal shows a person affection in a comfortable setting?

- A. increase in the hormone cortisol
- B. decrease in the neurotransmitter serotonin
- C. decreased heart rate
- D. increased blood pressure

2. Which of the following statements *describes* a reaction that someone had to a therapy animal in the passage?

- A. A self-conscious student felt comfortable reading aloud.
- B. An elderly patient became sad and depressed.
- C. A student felt less relaxed and had difficulty controlling his emotions.
- D. A sick patient recovered faster from an illness.

3. Review the picture of the therapy horse and volunteer. What adjective could be used to best describe the volunteer?

- A. self-conscious
- B. rude
- C. caring
- D. impatient

4. Read the following sentence:

"Daisy Mei loves to cuddle, says Lulu, and is a great companion on days when she's feeling down, 'especially after I do poorly on a test or something like that."

The word **companion** means

- A. friend
- B. boss
- C. owner
- D. stranger

5. The primary purpose of this passage is to

- A. describe how a therapy animal helps people with many types of problems
- B. compare and contrast therapy animals with regular pets
- C. persuade schools to have a dog in the building for kids with special needs
- D. convince pet owners to take their dogs to therapy training to get certified

6. What effect can a therapy dog have on an upset student like Jack?

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7. How might a therapy animal be able to give better emotional and social support than a person?

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8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Jack became flustered in class \_\_\_\_\_ he handed his teacher a ticket and visited the therapy dog, Poet.

- A. yet
- B. so
- C. because
- D. but

## WEEKLY CHALLENGE DIRECTIONS:

### How Close to 100?

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This has become one of our most popular tasks and we are hearing about all sorts of creative adaptations. Some youcubians have made grids of 400 and added dice, others have adapted it to let the grid represent 100%. Please post how you use this task with your students.

### Task Instructions

- This game is played with partners. Two children share a blank 100 grid.
- The first partner rolls two number dice.
- The numbers that come up are the numbers the child uses to make an array on the 100 grid.
- They can put the array anywhere on the grid, but the goal is to fill up the grid to get it as full as possible.
- After the player draws the array on the grid, she writes in the number sentence that describes the grid.
- The second player then rolls the dice, draws the number grid and records their number sentence.
- The game ends when both players have rolled the dice and cannot put any more arrays on the grid.
- How close to 100 can you get?

**Variation:** Each person can have their own number grid. Play moves forward to see who can get closest to 100.

### Materials

- Two dice
- Recording sheet (on next page)

**STEM: Nest Creation Follow up**



**How did your nest turn out?**

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**What was easy about the process?**

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**What was challenging?**

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**What materials did you find most helpful in building your nest?**

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**VOCABULARY:**

<b>Vocabulary Word</b>	<b>Definition</b>	<b>Picture</b>
Mammal	a warm-blooded vertebrate having the skin covered with hair	
Marsupial	a mammal the female of which has a pouch carrying the young	
Herbivore	any animal that feeds chiefly on grass and other plants	
Biology	the science that studies living organisms	
Environment	the totality of surrounding conditions	
Agricultural	relating to or used in or promoting farming	



Urbanization	the social process whereby cities grow	
Feline	of or relating to cats	
Amphibian	cold-blooded vertebrate living on land but breeding in water	
Camouflage	exploit the natural surroundings to disguise something	
Carnivore	a terrestrial or aquatic flesh-eating mammal	
Fang	canine tooth of a carnivorous animal	
Antler	deciduous horn of a member of the deer family	

Bill	horn projecting mouth of a bird	
Biodiversity	the variety of plant and animal life in a habitat	

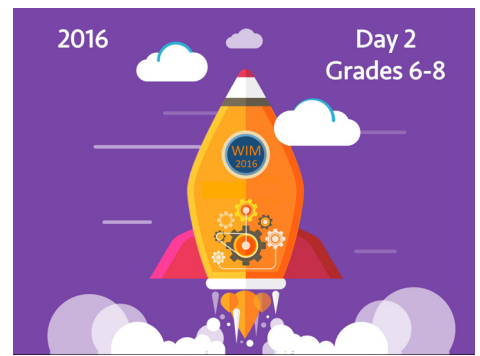
**WRITE:**

**Choose 1:**

-Draw an animal you have never seen before, but find interesting. Why do you find this animal interesting? What are the animal's strengths and weaknesses?

<p><b>Strengths:</b></p> <ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	<p><b>Weaknesses:</b></p> <ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>
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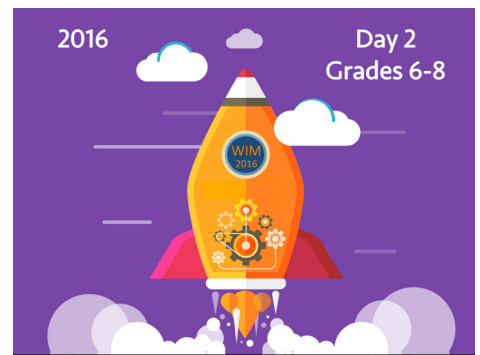


**Introduction:**

This activity is open and gives space for students to learn about representing in a graph with different dimensions but without numbers.

**Agenda for the day:**

Activity	Time	Description/Prompt	Materials
Mindset Video	5 min	Play the mindset video, <i>Mistakes are Powerful</i> <a href="https://www.youcubed.org/wim2-day-2/">https://www.youcubed.org/wim2-day-2/</a>	Mindset Video day 3, <i>Mistakes are Powerful</i>
Emoji Graph	10 min	Read and analyze a graph 1. What ideas do you have? 2. What do you notice? 3. What questions do you have? 4. What information is this giving to you?	LCD projector Paper/journal Pencil/pen
Create your own graph	15 min	Create a graph with a partner or a team.	Poster paper Markers Meter sticks/Rulers
Interpret a graph	10 min	Interpret another team's graph 1. Study the graph. 2. Respond to what the graph is saying.	
Closing	5 min	You may like to close the lesson by reminding students of the importance of believing in themselves. When they believe in themselves their brains grow more when they struggle or make a mistake.	



**Activity:**

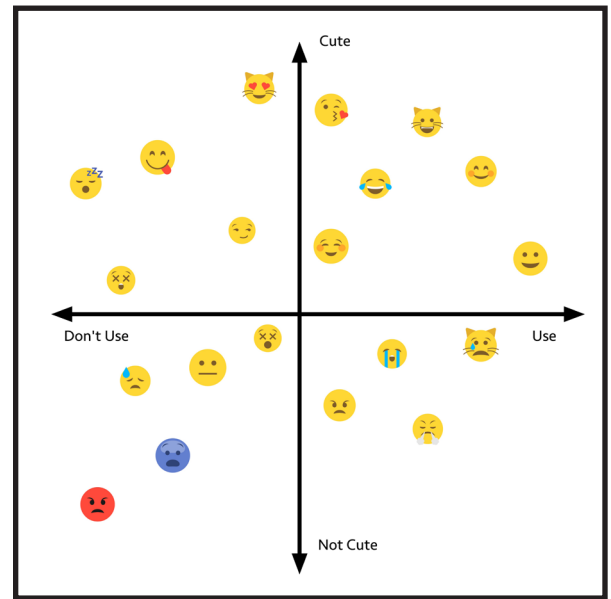
In this activity students discuss the ways that graphs can communicate variability along two dimensions.

Project the Emoji Graph and ask students to think about what the graph is saying. Ask students to record their answers to four questions about the graph in their notebooks or journals.

- What do you notice?
- What do you wonder?
- What questions do you have?
- What information does this graph provide?

The graph deliberately does not include numbers. Ask students to think intuitively about what the graph is communicating and not worry about labelling axes. If students want to assign a numbers when discussing what they notice, they can do so, but do not make this a requirement.

After giving individual time for students to think and answer the questions, ask students to share their ideas with their group. Ask students to make sure that every student has the chance to talk about what they noticed about the graph and one question. When groups are finished sharing, bring them together as a class and discuss students' ideas and questions.

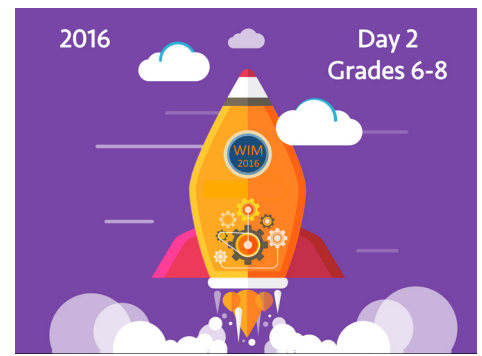


Jo's Emoji's

After the class discussion invite students to make their own graphs, choosing the topic of the graph and the 2 dimensions it varies along. In our summer school students chose topics such as ice cream, entertainment, desserts, and candy. It is important to leave the topic open for groups to decide upon, which increases students' interest engagement, and learning. The axes of the graphs do not have to have numbers, although they can if students decide this.

While groups work to make graphs, listen in to how they are coming to agreement about where to place items on the graph. As you listen encourage students both to share their own ideas and ask other's to share their ideas. If you notice individuals dominating what is recorded on the poster, ask them to share with you how they are deciding where to place items on the graph. If you ask about their decisions for a specific item you can join their discussion and model the kind of conversation that leads to making a collaborative agreement.





In the next part of the activity groups will read each other's graphs. When each group has at least 12-15 items placed on their graph hang the posters up around the room so they are located near to another group, that did not make it. Give groups time to study and discuss the graph made by another group.

Once groups are ready bring the class back together. Ask each group to describe what the poster they read, is showing. Rotate from group to group giving each group about 2-5 minutes to describe and respond to the graph poster they saw.



**LANGUAGE:**

Sketch your favorite tree from your hike/nature walk. Do you know what type of tree this is? If not, try Googling the name of it.

**The Tree that I found if called a:** \_\_\_\_\_

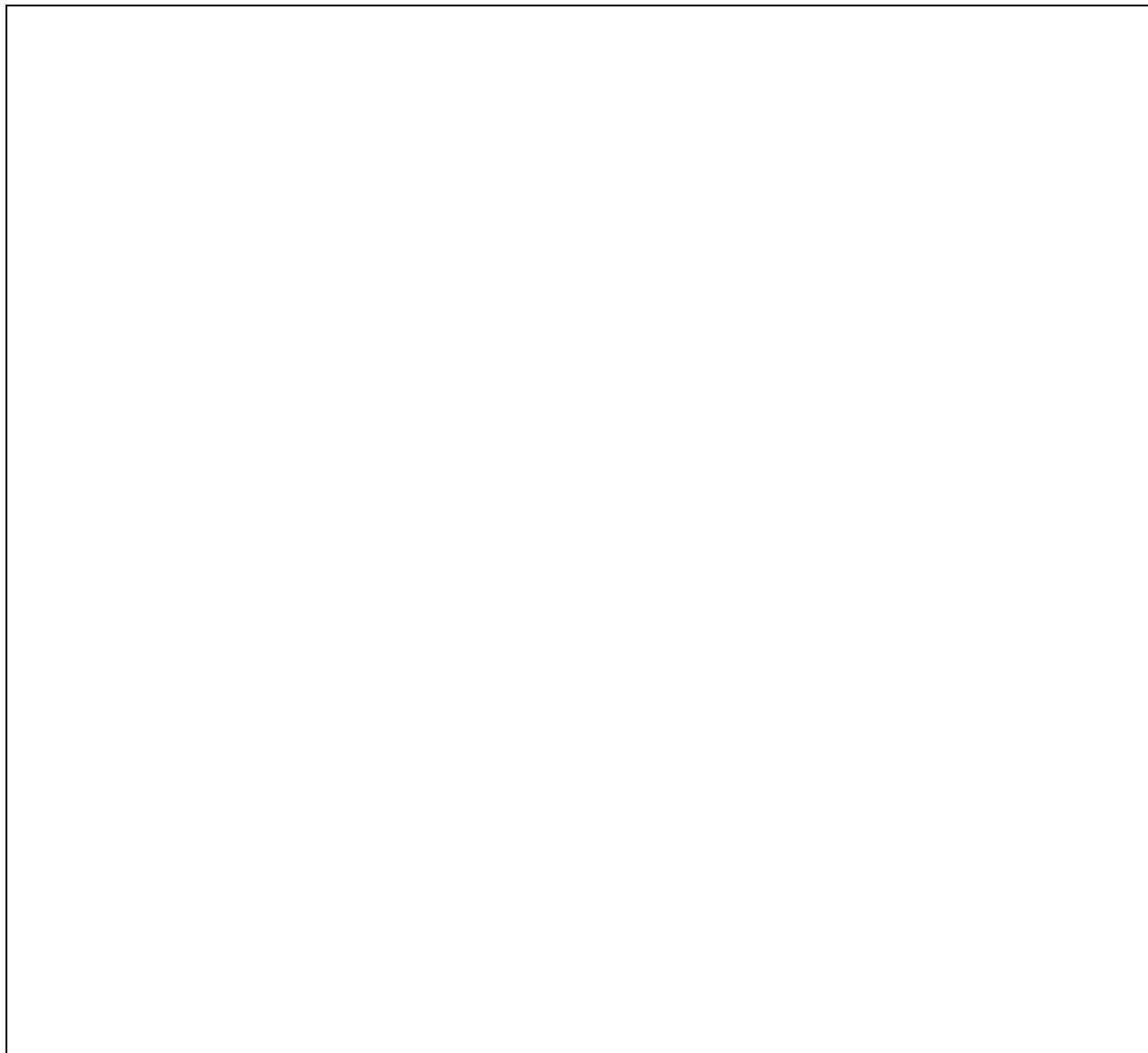
**I chose this tree because:**

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## How Close to 100?


1. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

2. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

3. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

4. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

5. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

6. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

7. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

8. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

9. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

10. \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

## Credits

Math: <https://www.youcubed.org/>

Vocabulary: <https://www.vocabulary.com/lists/11804>

Stories: <https://www.readworks.org/>

STEM: @CarlyandAdam on TeacherspayTeachers

WEEKLY CHALLENGE: <https://www.youcubed.org/>

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