



MINNESOTA ZOO

OPERATION CURIOSITY & WONDER



My Observations, Questions, and Data about the Natural World

THIS SCIENCE JOURNAL BELONGS TO:



Use your Powers of Observation and the Practices of Science and Engineering

Information for Teachers and Families

Overview:

Using our “powers of observation” is the first step in investigating and learning about the natural world. It is also one of the outlined practices of science and engineering that allow us to learn the content knowledge of science and pair it with the critical thinking of defining problems and creating solutions associated with engineering. We are providing you with support to get children better connected with nature and the natural world. The purpose of these activities is to connect learners to the natural world around them and their academic standards, provide opportunities for social-emotional learning, and deepen their understanding about how the world around them works.

How it works at home:

Pick a spot to go to each day. This could be in your yard, a park nearby, farmland, forest, or even a window in your home. Bring the materials outlined with you. Spend **10-15 minutes** each day doing the activities outlined for the day. If possible, send an adult or responsible party with the learner so they can express their thoughts and ideas and build connections to the people around them during this time. It may be easier for your learner to say or talk through their ideas, and for others, they may wish to express themselves with writing or drawing. Encourage them to show their understanding in the way that best fits their learning! Have fun with this. It is meant to provide an opportunity for learners to make simple observations about the natural world that connects them to their senses and nurtures their sense of curiosity and wonder!

Using the Student Sheets:

(See Appendices for Minnesota Academic Benchmarks)

K-2: This journal is meant to help learners use their observation skills or **powers of observation** to make sense of the world around them. As winter turns to spring, there will be lots of changes to observe and make note of! Each daily activity is meant to be used on that day of the week so the Monday observations would be ideally taken from the same place every Monday and patterns through student data may emerge week by week.

Each week:

1. Start by reading an *Everyday Science Mysteries* from NSTA Press to your learner. (See *suggested weekly reading schedule*)
2. Engage and participate in the daily observation/question/data/modeling/prediction gathering prompts based on a theme for the day.
3. Culminate the journaling activities into:
 - a. Writing the completion of the science mystery making claims and using evidence gathered throughout the week.
 - b. Writing a persuasive letter to the main character that outlines advice and claims based on evidence collected throughout the week/month of distance learning
 - c. Extend the learning with engineering activities for each grade level.
 - d. Connect observations and questions to [Cross Cutting Concepts](#) like patterns, cause and effect, scale/proportion/quantity, systems and system models, energy and matter, structure and function, and stability and change. Use evidence to make claims.



OPERATION CURIOSITY & WONDER

Kindergarten–Second Grade

Monday	Tuesday	Wednesday	Thursday	Friday
Plants Everyday Science Mystery Reading	Animals (Birds, Insects)	Clouds, Weather, Wind	Sun/Moon	Water

Feedback for the Minnesota Zoo:

Thank you for your interest in our Distance Learning Resources! We are interested in learning about your experience with these resources, and we are asking you to take approximately 5 to 10 minutes of your time to complete a brief survey to provide valuable feedback to the Minnesota Zoo. The survey can be accessed at <https://survey.mn.gov/s.asp?k=158697965283>.

Information for Adults Helping to Facilitate

Overview:

The purpose of these activities is to connect learners to the natural world around them and their academic standards, provide opportunities for social-emotional learning, and deepen their understanding about how the world around them works.

How it works at home:

Pick a spot to go to each day of the week. This could be in your yard, a park nearby, farmland, forest, or even a window in your home. Bring the materials outlined with you. Spend **10-15 minutes** each day doing the activities outlined for the day at this spot. This is meant to provide an opportunity for learners to make simple observations about the natural world that connects them to their senses and nurtures their sense of curiosity and wonder!

Proposed Daily and Weekly Schedule:

Monday	Tuesday	Wednesday	Thursday	Friday
Plants Location: Outdoor area with living plants (park, yard, forest, farmland)	Animals (Birds, Insects) Location: Outdoor area where learner may be able to see or hear birds	Clouds, Weather, Wind Location: Outdoor area where learner can see the sky	Sun/Moon Location: Outdoor area where learner can see the sky	Water Location: Outdoor area with water (river, lake, stream, pond, wetland)
Materials Needed: Weekly Story (<i>Where are the Acorns?</i>), Paper, Pencil/Pen, Powers of Observation				

Optional Materials:

- Crayons or Colored Pencils
- Computer or iPad (for resources)
- Binoculars, hand lenses

Questions to Help Students Think Critically and Show Understanding (Optional):

1. Did you notice anything new this week?
2. What do you think will happen next week?
3. What was your favorite part of going outside today?
4. What do you wonder about after today?

Introduction for Learners—Day One

1. Have an adult read to you the story *Where are the Acorns?* (NSTA Press 2013) to start the week. When finished answer the following questions. Follow the “Suggested Weekly Reading List” for each week’s science mystery.
 - a. Who is the main character in the story?
 - b. What problem, or issue, is the main character having?
 - c. Why do you think it happened?
 - d. What do you already know that will help you solve the mystery?
 - e. What do you need to know to figure out this week to solve it?
 - f. If the main character solved it, do you think that was a good solution to the problem? Why or why not?



- | | |
|--|--|
| 1.

Human-made or made in nature
Living or non-living | 2.

Human-made or made in nature
Living or non-living |
| 3.

Human-made or made in nature
Living or non-living | 4.

Human-made or made in nature
Living or non-living |

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- @MNZOO**
Learning Corner

Monday's Activity

Grades: K-2

How Are All Living Things Related?

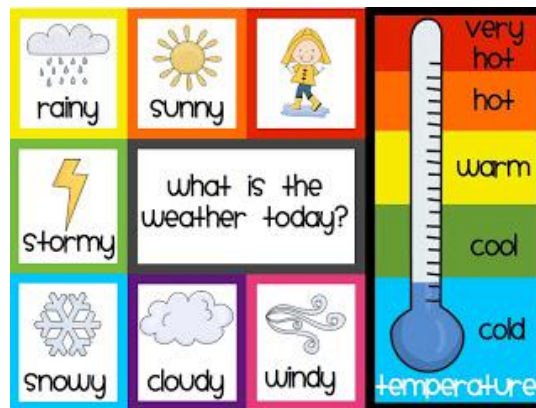
PLANTS

Directions: Find one living outdoor plant. **Draw/photograph** it at least 1 time per week. Pay careful attention to details and things that make this plant special. Use your powers of observation! Each week, answer these prompts. Adults, this may be a conversation between you and your learner or they may draw and explain their reasoning:

Today is: _____
Day / Month / Year

Where are you exploring?: _____

1. What is the weather like today? **Circle** the pictures that describe it best.



2. **Find** a living plant. Introduce yourself to your plant. What did you say? (social emotional learning)

3. What type of plant do you think this is? What do you notice that makes it different from other plants?

4. What is the ground or soil near your plant like? Do you see any other living things on or near your plant? **Describe** or **draw** a picture!

5. How big is your plant compared to you? **Draw** you and your plant and tell an adult in your home about it!

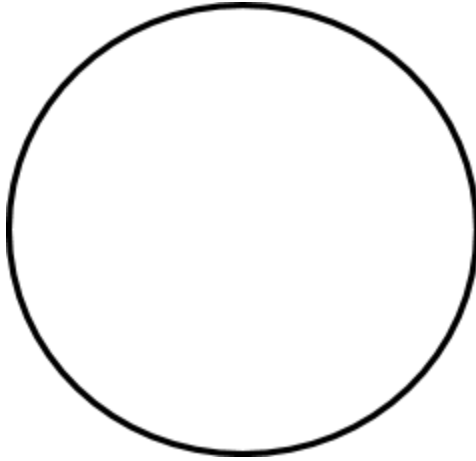
ME

PLANT

6. What different parts make up your plant? **Draw** the parts you can see and talk about parts you may not be able to see.

Parts You Can See	Parts You Cannot See

7. Look at your plant up close. Use a magnifying lens if you have one. **Draw** what you see.



8. **Write** a story that explains how this plant got here or what animals might use your plant for a home! Tell your story to a friend or family member.

Today, I noticed (saw/smelled/heard/touched)...

Observations:

Now, I wonder about...

Questions:

All Done for Monday!



Tuesday's Activity

Grades: K-2

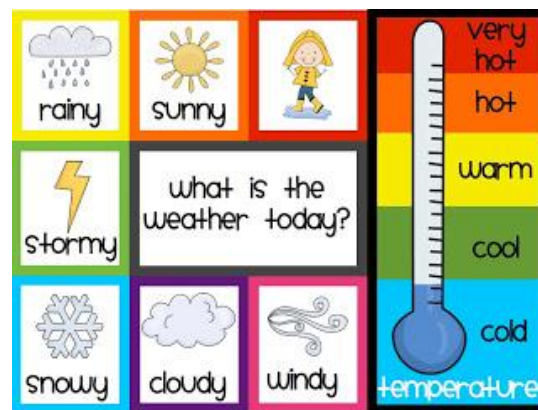
How are All Living Things Related?

ANIMALS

Directions: Find one living outdoor bird, insect or animal each day. **Draw/photograph** it at least 1 time per week. Pay careful attention to details and things that make this animal special. Use your powers of observation! Each week, answer these prompts. Adults, this may be a conversation between you and your learner or they may draw and explain their reasoning:

Today's date is: _____ Where are you exploring?: _____
Day / Month / Year

1. What is the weather like today? **Circle** the pictures that describe it best.



2. **Find** a bird/insect/animal outside. Use your powers of observation to listen and watch! Introduce yourself to the animals. What did you say? (social emotional learning) What do you hear them saying?

3. How do you know what kind of animal it is? What clues tell you?

4. What is the area (ground, soil, air, sky) around your animal like? **Describe or draw** a picture!

5. How big is your animal compared to you? **Draw** you and your animal or talk to an adult!

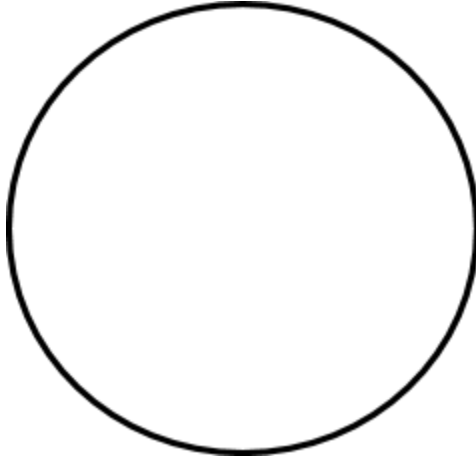
ME

ANIMAL

6. What different parts make up your animal? **Draw** parts you can see and talk about parts you cannot see.

Parts You Can See	Parts You Cannot See

7. Imagine if you could look at your animal up close. Use your imagination and **draw** what you see!



8. **Write** a story that explains how your animal got here and where it is going next! Tell your story to a friend or family member.

Today, I noticed (saw/smelled/heard/touched)...

Observations:

Now, I wonder about...

Questions:

All Done for Tuesday!



Wednesday's Activity

Grades: K-2

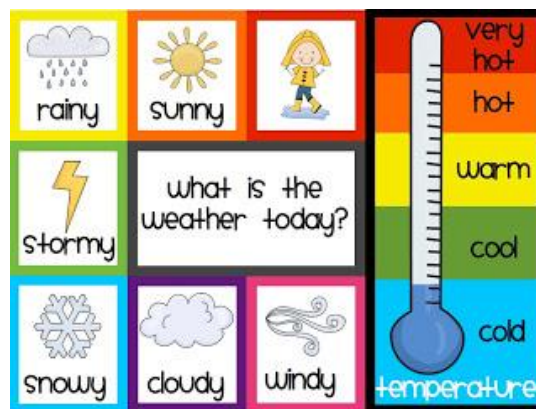
How are All Living Things Related?

CLOUDS, WEATHER, WIND

Directions: Find clouds in the sky. Draw/photograph them at least 1 time per week. Pay careful attention to details and things that make the sky special. Use your powers of observation! Each week, answer these prompts. Adults, this may be a conversation between you and your learner or they may draw and explain their reasoning:

Today's date is: _____ Where are you exploring?: _____
Day / Month / Year

1. What is the weather like today? Circle the pictures that describe it best.



2. Use your powers of observation and look up at the sky! **Find** a cloud. Introduce yourself to the clouds. What did you say? (social emotional learning)

3. How do you know it is a cloud? What clues tell you?

4. **Circle** the words that best describe your cloud.

Puffy like Cotton Balls

Dark

Low in the Sky

Feathery

White

Somewhere in between

Thin

Light

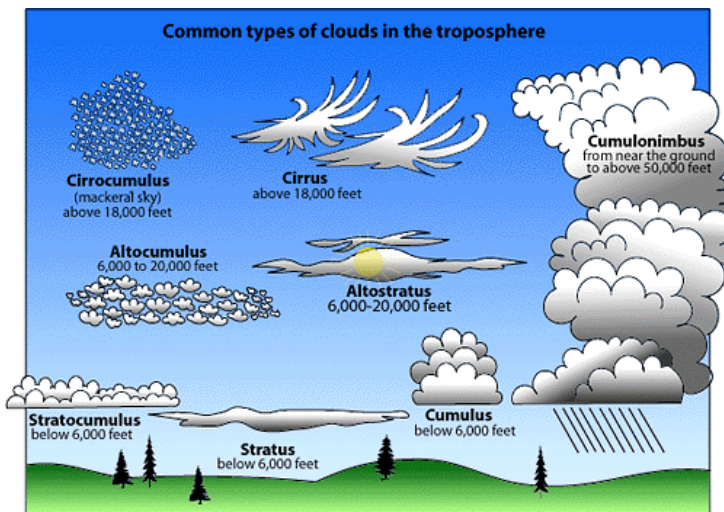
High in the Sky

5. Draw a picture of your cloud. How big is it compared to you?

ME

CLOUD

6. What shape is your cloud? **Circle** it on the picture below.

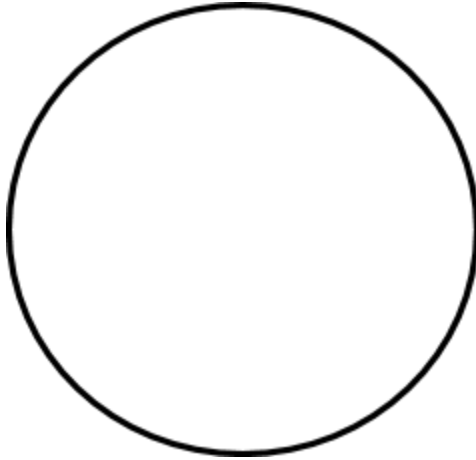


Do you feel any wind or air moving around you?

What could you **make, build, or use** to help you tell which way the wind is coming from?

Photo Source: Center for Science Education

7. What if you could look at your cloud with a magnifying lens? Use your imagination and **draw** what you would see.



8. **Write** a story that explains where the clouds and wind came from today. Tell your story to a friend or family member.

Today, I noticed (saw/smelled/heard/touched)...

Observations:

Now, I wonder about...

Questions:

All Done for Wednesday!



Thursday's Activity

Grades: K-2

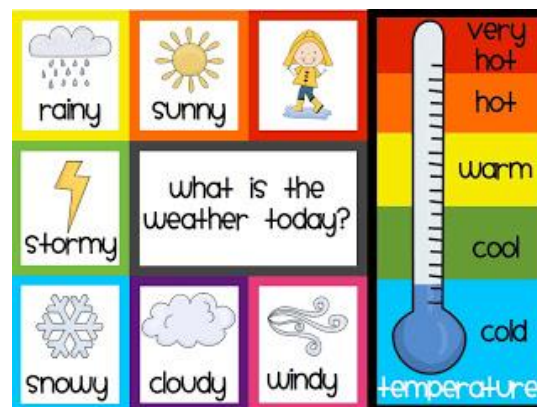
How are All Living Things Related?

SUN/MOON

Directions: Find the sun and the moon in the sky. Draw/photograph them at least 1 time per week from the same spot. Pay careful attention to details and things that make the sky special. Adults, this may be a conversation between you and your learner or they may draw and explain their reasoning.

Today's date is: _____ Where are you exploring?: _____
Day / Month / Year

1. What is the weather like today? **Circle** the pictures that describe it best.



2. Use your powers of observation and look up at the sky! **Find** the sun and maybe even the moon. Introduce yourself. What did you say? (social emotional learning)
3. How do you know where to look for the sun and moon? What do you know about them already? Use this tool to help you explain: "**I know** _____ **because** _____". Write down/think about your ideas and talk to someone about them.

4. From where you are sitting, where are the Sun and Moon in the sky? Draw it below and note the time.

Sun	Time of Day: _____	Moon	Time of Day: _____

5. **Talk** to a friend or family member. Are they in a different spot than they were last week? What do you think will happen next week?

6. During what time(s) of day do you think we will see colors other than blue in the sky? Which colors do you predict? Color them in or write their names here!

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7. How big are you compared to the sun and the moon? **Draw** you and the sun and moon. How big are they compared to you?

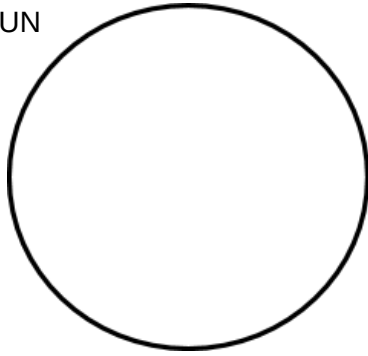
Me

Sun

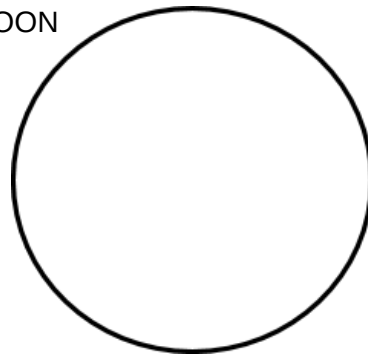
Moon

8. What do you think the surfaces of the sun and moon look like up close?

SUN



MOON



9. **Write** a story that explains how the Moon got in the sky and why the Sun and Moon take turns in the sky!
Tell your story to a friend or family member.

Today, I noticed (saw/smelled/heard/touched)...

Observations:

Now, I wonder about...

Questions:

All Done for Thursday!



Friday's Activity

Grades: K-2

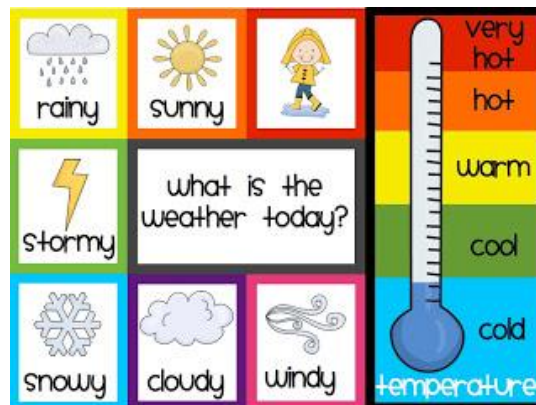
How are All Living Things Related?

WATER

Directions: Find a source of water. **Draw/photograph** it at least 1 time per week from the same spot. Pay careful attention to details. Adults, this may be a conversation between you and your learner or they may draw and explain their reasoning. For safety reasons, whenever children are near sources of water they must be under the supervision of an adult.

Today's date is: _____ Where are you exploring?: _____
Day / Month / Year

1. What is the weather like today? **Circle** the pictures that describes it best.



2. Use your powers of observation and look for a source of water! This could be a river, stream, lake, creek, pond, wetland, puddle, or even a storm drain near your house. Introduce yourself with the water. What did you say? (social emotional learning)
3. Where does water come from? How do we know where to look for water? Use this tool to help you explain: "I know _____ because _____". Write down/think about your ideas and talk to someone about them.

4. **Imagine** if you were looking at your water from the sky. What shape is it in? **Draw or describe** the shape. How big are you compared to your waterway? Draw you to compare.

Me

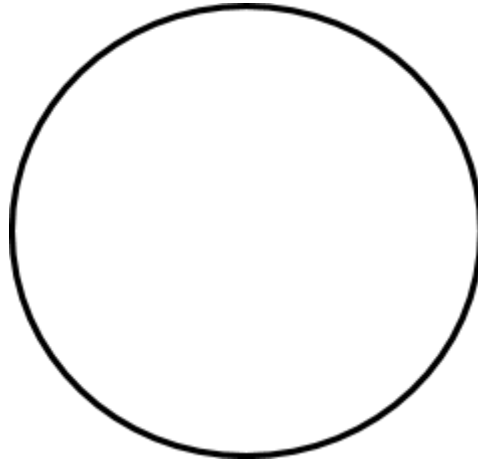
Water

5. **Circle** the words that best describe the water source using your powers of observation. Practice making the sounds as you investigate!

We hear:	We see:	We feel:
Gurgling	Clear	Cold
Trickling	Muddy	Cool
Dripping	Murky	Warm
Splashing	Dark	Hot
Crashing	Green	Very Hot
Rushing	Solid	Slippery
	Liquid	Gritty
	Blue	Wet

6. How did you use water today? **Think** about the plant you visit on Mondays. How do you think it uses water? What about the animals you watch on Tuesdays?

7. What does water look like close up? Use a magnifying lens or your imagination and **draw** what you see. Does it matter if it is frozen, liquid, or in the air?



8. Write a story that explains how the water got there, who uses it and what it will look like tomorrow! Tell your story to a friend or family member.

Today, I noticed (saw/smelled/heard/touched)...

Observations:

Now, I wonder about...

Questions:

All Done for Friday!



Engineering Extension: Kindergarten

As you explore and spend time outside each day, look for things that are human-made and made in nature. Are there some things that look human-made that should possibly not be there like plastic straws and bags, garbage, or wrappers?

Notice three pieces of garbage (wrappers, straws, plastic bags) per day and three things found in nature (pine cones, leaves, sticks) while you are out on your wonder walk. If they can be safely picked up and brought home, pick them up and take them with you. If they look sharp or unsafe, leave them and find something else. When you get home, sort them into the categories found below and then build your own animal sculpture!



Source: Smithsonian Magazine

First, sort them into:

Human Made

Nature Made

Unsure

Next, sort them into:

Could be harmful to animals

Could help animals

Looking for more items to build with? Try using wrappers and other clean items you may have normally put in the garbage. Use this as an opportunity to create art and repurpose materials that would have been thrown away. Use this prompt to help you figure out new ways to use things we would have thrown away:

- Person One:
 - “Good morning _____!” Say the name of the person you are playing with.
 - Would you throw this away for me?” Pass the thing that could be thrown away or used creatively to Person Two.
- Person Two:
 - Good morning _____!” Say the name of the person you are playing with.
 - “This isn’t trash! This is a _____ for my art project.”

Build Time!

Create an animal sculpture from the items you gather. What can you use in your home to help you build it? Build your animal over the next month while you help clean up your neighborhood and protect nature! Take pictures and send them to the Minnesota Zoo so we can see your masterpiece!

Show off your work! Take pictures of your device and send them to the Minnesota Zoo so we can cheer you on! Email it to learningcorner@mnzoo.edu or post it to share!



Post pictures to Instagram: @mnzoo, @mnzooedu



Post Pictures to Facebook: Minnesota Zoo Educators Facebook Page

Engineering Extension: 1st Grade

Design and build your own wind direction and speed device using common household items! Scientists use the Beaufort Wind Scale to measure wind speeds and directions. Use your creativity to make your very own device that you can use to measure the weather on Wednesdays!

Beaufort Wind Scale	
Force 0	Calm
Force 1	Light Air
Force 2	Light Breeze
Force 3	Gentle Breeze
Force 4	Moderate Breeze
Force 5	Fresh Breeze
Force 6	Strong Breeze
Force 7	Near Gale
Force 8	Gale
Force 9	Strong Gale
Force 10	Storm
Force 11	Violent Storm
Force 12	Hurricane

Photo Source: National Weather Service



Photo Source: herbert2512/Pixabay

Build Time!

Look around the house and outside to find objects that may be helpful in building your device. Use the Beaufort Wind Scale (above) to help you think about how your materials will tell you the force of the wind. You may need to test different materials to see which works best! Take pictures of your process and document your learning.

Things to think about as you design your device:

- How will you know which direction the wind is coming from?
- How will you decide the force level based on your device?

Show off your work! Take pictures of your device and send them to the Minnesota Zoo so we can cheer you on! Email it to learningcorner@mnzoo.edu or post it to share!



Post pictures to Instagram: @mnzoo, @mnzooedu



Post Pictures to Facebook: Minnesota Zoo Educators Facebook Page

Engineering Extension: 2nd Grade

As you explore and spend time outside each day, look for things that are human made and made in nature. Are there some things that look human made that should possibly not be there like plastic straws and bags, garbage, or wrappers?

Pick up three pieces of garbage (wrappers, straws, plastic bags) per day. If they can be safely picked up and brought home, pick them up and take them with you. If they look sharp or unsafe, leave them and find something else. When you get home, sort them into the categories found below and then build your own plant sculpture!

Wondering Questions:

- What purposes do the things you find have?
- How are they designed to benefit people in their everyday way of life?
- How can they be harmful to wildlife and nature?

Evaluating Materials for Building:

Assess and determine which objects will be best for your sculpture. What materials are most useful to you as you build your plant sculpture?

How will you show the different parts of your plant using your found materials? What parts represent the stem, leaves, flowers, fruits, branches, seeds and roots? Challenge: which parts represent the pollen, pistil, and stamen?

Looking for more items to build with? Try using wrappers and other clean items you may have normally put in the garbage. Use this as an opportunity to create art and repurpose materials that would have been thrown away. Use this prompt to help you figure out new ways to use things we would have thrown away:

- Person One:
 - “Good morning _____!” Say the name of the person you are playing with.
 - “Would you throw this away for me?” Pass the thing that could be thrown away or used creatively to Person Two.
- Person Two:
 - Good morning _____!” Say the name of the person you are playing with.
 - “This isn’t trash! This is a _____ for my art project.”

Draw your Design!

Build Time!

Each day you gather objects, build a plant sculpture with the objects you find! Build your plant over the next month while you help clean up your neighborhood and protect nature! Be sure to label the parts of your plant, and if you are feeling extra creative, build your plant in different stages of its life cycle (seed, seedling, young plant, adult plant, flower, fruit, etc). Take pictures and send them to the Minnesota Zoo so we can see your masterpiece!

Show off your work! Take pictures of your device and send them to the Minnesota Zoo so we can cheer you on! Email it to learningcorner@mnzoo.edu or post it to share!



Post pictures to Instagram: @mnzoo, @mnzooedu



Post Pictures to Facebook: Minnesota Zoo Educators Facebook Page



Photo Source: M. Earnest

Formative and Summative Assessment of Learning Wrap Up for Students

Checks for Understanding

I hope you had fun exploring your area this week. Next week should bring more change and excitement. Answer these questions and keep in a safe place so you can show your teacher all the neat things you learned.

1. Look through all of the ideas you recorded about the size of different things. Compare them using words like: bigger and smaller, hotter and colder, faster and slower.

_____ is bigger than _____. I know this because _____.

2. What was the weather like this week? For each day draw the cloud type, the sun, and the moon phase.

	Monday	Tuesday	Wednesday	Thursday	Friday
Cloud Type					
Sun Shape					
Moon Shape					

3. Looking at your data, what patterns do you see? What can you predict for next week? Write two to three sentences explaining any patterns you noticed in journal about the sun, moon, and weather.

4. What can you predict for next week?

The Moon will _____ because _____.

The Sun will _____ because _____.

The Weather will _____ because _____.

5. Did you solve the mystery of *Where Are the Acorns?* If so, write a letter to Cheeks and tell Cheeks what to do next! Explain the reason the acorns were not found. Be sure to include the clues you discovered.
- *After you are done helping Cheeks solve Where Are the Acorns?, move on to the next mystery in your weekly schedule and use your “powers of observation” help that character!*

Rubric for Daily Work (Prompts 1-4 from Checks for Understanding)

	4	3	2	1
Reason for selecting area	Writes 2-3 sentences. Gave clear reason and expanded on why.	Writes 1-2 sentences. Gave a clear reason but didn't expand on why	Writes 1 sentence. Gave reason. Did not expand on why	Wrote nothing. Left blank.
Listing living and nonliving parts and connection	Lists 3 living parts List 3 nonliving parts Drew line connecting 2 parts and listed the relationship.	Lists 3 living parts List 3 nonliving parts No line connecting 2 parts and listed the relationship.	Lists 2 living parts List 2 nonliving parts Either drew or no line connecting 2 parts and listed the relationship.	Lists 1 living parts List 1 nonliving parts Either drew or no line connecting at least 2 things and listed the relationship.
Week's weather	Drew cloud, sun, and moon for all 5 days.	Drew cloud, sun, and moon for 4 days	Drew cloud, sun, and moon for 3 days	Drew cloud, sun, and moon for only 1-2 days
Where Are the Acorns? Advice for Cheeks	Wrote a letter with a clear mention of the clues and expanded on it that helped solve the mystery.	Wrote a letter with a mention of a clue but didn't expand on it that helped solve the mystery.	NA	Wrote a letter but didn't talk about clues that helped solve the mystery

6. Finish the story! Write a story that tells the end of the mystery and Cheeks adventure. Be sure to use evidence from your observations to explain what happened to the acorns and what Cheeks does next.

Requirements to help you write your story:

- 3 paragraphs
- 2-5 sentences in each paragraph
- 10 or more adjectives in your story
- 5 observations you used to write your story
- 2 patterns you noticed
- Includes information about plants, animals, clouds/weather, sun and moon, and water
- Extra Extension: write and illustrate your story. Read it to someone in your home!

Rubric for Finishing the Mystery (Prompt 5 from Checks for Understanding)

	4	3	2	1
Structure: Paragraphs and Sentences	Writes 3 sentences with 2-5 sentences. Syntax and grammar are consistent with progress so far this academic year.	Writes 3 paragraphs with 2-5 sentences. Syntax and grammar are inconsistent with progress so far this academic year.	Writes less than 3 paragraphs or 2-5 sentences per paragraph. Syntax and grammar are inconsistent with progress so far this academic year.	Writes less than 3 paragraphs and less than 2-5 sentences per paragraph. Syntax and grammar are not grade-level appropriate.
Includes Data and Observations of Plants, Animals, Clouds/Weather, Sun/Moon, and Water	Uses data to form conclusions and provides detailed observations from all 5 themes and includes an additional theme not outlined by days	Uses data to form conclusions and provides detailed observations from 5 themes.	Uses data to form conclusions and provides detailed observations from 4 or fewer themes.	Uses data but may not provide conclusions and provides observations without details from 4 or fewer themes.
Observations and Descriptive Details	Uses more than 10 adjectives in the story that accurately match 5 or more observations	Uses 10 adjectives in the story that accurately match 5 observations	Uses less than 10 adjectives in the story that accurately match 5 observations	Uses less than 10 adjectives in the story that do not accurately match 5 or less observations
Patterns	Use their observations and the practices of science and engineering to explain 2 or more patterns that emerged from their data. The explanation uses evidence to draw conclusions.	Use their observations and the practices of science and engineering to explain 2 patterns that emerged from their data. The explanation uses evidence to draw conclusions.	Use their observations and the practices of science and engineering to explain 2 patterns that emerged from their data. The explanation does not use evidence to draw conclusions.	Use their observations and the practices of science and engineering to explain 1 or less patterns that emerged from their data. The explanation does not use evidence to draw conclusions.

Appendix A: Kindergarten

Nature of Science	Life Science	Earth Science	Physical Science
0.1.1.2.1 Use observations to develop an accurate description of a natural phenomenon and compare one's observations and descriptions with those of others. 0.1.2.1.1 Sort objects in to two groups: those that are found in nature and those that are human made. <i>For example:</i> Cars, pencils, trees, rocks.	0.4.1.1.1 Observe and compare plants and animals. 0.4.1.1.2 Identify the external parts of a variety of plants and animals including humans. <i>For example:</i> Heads, legs, eyes and ears on humans and animals, flowers, stems and roots on many plants. 0.4.1.1.3 Differentiate between living and nonliving things. <i>For example:</i> Sort organisms and objects (or pictures of these) into groups of those that grow, and reproduce, and need air, food, and water; and those that don't. 0.4.2.1.1 Observe a natural system or its model, and identify living and nonliving components in that system. <i>For example:</i> A wetland, prairie, garden or aquarium.	0.3.2.2.1 Monitor daily and seasonal changes in weather and summarize the changes. <i>For example:</i> Recording cloudiness, rain, snow and temperature. 0.3.2.2.2 Identify the sun as a source of heat and light. <i>For example:</i> Record the time of day when the sun shines into different locations of the school and note patterns.	0.2.1.1.1 Sort objects in terms of color, size, shape, and texture, and communicate reasoning for the sorting system.

Appendix B: 1st Grade

Nature of Science	Life Science	Earth Science
1.1.1.1.1 When asked "How do You Know?", students support their answer with observations. <i>For example:</i> Use observations to tell why a squirrel is a living thing. 1.1.1.1.2 Recognize that describing things as accurately as possible is important in science because it enables people to compare their observations with those of others. 1.1.3.1.1 Observe that many living and nonliving things are made of parts and that if a part is missing or broken, they may not function properly. 1.1.3.2.1 Recognize that tools are used by people, including scientists and engineers, to gather information and solve problems. <i>For example:</i> Magnifier, snowplow, calculator.	1.4.1.1.1 Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors. 1.4.2.1.1 Recognize that animals need space, water, food, shelter and air. 1.4.2.1.2 Describe ways in which an animal's habitat provides for its basic needs. <i>For example:</i> Compare students' houses with animal habitats. 1.4.3.1.1 Demonstrate an understanding that animals pass through life cycles that include a beginning, development into adults, reproduction and eventually death. <i>For example:</i> Use live organisms or pictures to observe the changes that occur during the life cycle of butterflies, meal worms or frogs. 1.4.3.1.2 Recognize that animals pass through the same life cycle stages as their parents	1.3.1.3.1 Group or classify rocks in terms of color, shape and size. 1.3.1.3.2 Describe similarities and differences between soil and rocks. <i>For example:</i> Use screens to separate components of soil and observe the samples using a magnifier. 1.3.1.3.3 Identify and describe large and small objects made of Earth materials.

Appendix C: 2nd Grade

Nature of Science	Life Science	Earth Science	Physical Science
2.1.1.2.1 Raise questions about the natural world and seek answers by making careful observations, noting what happens when you interact with an object, and sharing the answers with others. 2.1.2.2.1 Identify a need or problem and construct an object that helps to meet the need or solve the problem. <i>For example:</i> Design and build a tool to show wind direction. <i>Another example:</i> Design a kite and identify the materials to use. 2.1.2.2.2 Describe why some materials are better than others for making a particular object and how materials that are better in some ways may be worse in other ways. <i>For example:</i> Objects made of plastic or glass. 2.1.2.2.3 Explain how engineered or designed items from everyday life benefit people.	2.4.1.1.1 Describe and sort plants into groups in many ways, according to their physical characteristics and behaviors. 2.4.2.1.1 Recognize that plants need space, water, nutrients and air, and that they fulfill these needs in different ways. 2.4.3.1.1 Describe the characteristics of plants at different stages of their life cycles. <i>For example:</i> Use live organisms or pictures to observe the changes that occur during the life cycle of bean plants or marigolds.	2.3.2.2.1 Measure, record and describe weather conditions using common tools. <i>For example:</i> Temperature, precipitation, sunrise/sunset, and wind speed/direction.	2.2.1.1.1 Describe objects in terms of color, size, shape, weight, texture, flexibility, strength and the types of materials in the object. 2.2.1.2.1 Observe, record, and recognize that water can be a solid or a liquid and can change from one state to another.

Resources

<https://scied.ucar.edu/learning-zone/clouds/cloud-types>

UCAR Center for Science Education

<https://svs.gsfc.nasa.gov/4236>

NASA Visualization Studio

https://www.jpl.nasa.gov/edu/pdfs/sky_cloudchart.pdf

NASA Simple Cloud Chart

https://www.jpl.nasa.gov/edu/pdfs/sky_cloudchart_espanol.pdf

NASA Simple Cloud Chart- Spanish

<https://education.mn.gov/MDE/dse/stds/sci/>

Minnesota Department of Education

2009 Science Academic Standards

<https://education.mn.gov/MDE/dse/health/covid19/AcademicStandardsCOVID-19Resources/>

Minnesota Department of Education

Distance Learning Considerations

<https://education.mn.gov/MDE/dse/health/covid19/AcademicStandardsCOVID-19Resources/>

Minnesota Department of Education

Science Standards Support for Distance Learning

<https://www.nextgenscience.org/>

Next Generation Science Standards