Science Learning Packet
Grade 6:
Weather Patterns, Lesson 12

science learning activities for SPS students during the COVID-19 school closure.

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While Seattle Public Schools endeavors to only post documents optimized for accessibility, due to the nature and complexity of some documents, an accessible version of the document may not be available. In these limited circumstances, the District will provide equally effective alternate access.

Due to the COVID-19 closure, teachers were asked to provide packets of home activities. This is not intended to take the place of regular classroom instruction but will help supplement student learning and provide opportunities for student learning while they are absent from school. Assignments are not required or graded. Because of the unprecedented nature of this health crisis and the District’s swift closure, some home activities may not be accessible.

If you have difficulty accessing the material or have any questions, please contact your student’s teacher.
Weather Patterns

Chapter 1: Understanding Rainfall
Chapter 2: Investigating Temperature
Chapter 3: Exploring Wind and Pressure
Hello Families,

We hope you and your family are well and safe during this time. During this unprecedented out-of-school time, the SPS middle school science team will be offering instructional opportunities for students that align with the district’s adopted middle school science instructional materials.

This investigation packet is part in a series of district-aligned lessons While Amplify Science lessons are designed to be done in the classroom with peers, there are some activities that students can complete at home. In this packet you will find activities to accompany Chapter 3 of the unit. Accompanying lesson videos will be aired on SPS TV and posted the SPS webpage under Grade 6, however this packet can be used with or without the accompanying video.

This investigation packet is part of a series of district-aligned lessons for Weather Patterns, a 6th grade life science unit developed by AmplifyScience and adopted by SPS in 2019. While Amplify Science lessons are designed to be done in the classroom with peers, there are some activities that students can complete at home. In this packet you will find activities to accompany lessons in the unit. Accompanying lesson videos are posted on the SPS Science webpage under their corresponding grade level. These lesson videos, developed in collaboration between SPS teachers, Denver Public Schools teachers, and Amplify Science, feature teachers going through the information in the lessons. The work in this packet is intended to be completed alongside the viewing of the video of the corresponding videos. To find the correct lesson videos go to SPS Science webpage, scroll to your grade level, find the unit you are looking for, and select the video that matches the lesson you are completing that day.

For students who have access to the internet and the following devices and browsers may wish to log-in to their AmplifyScience account from home are welcome to do so. Chrome and Safari are the recommended browsers to use for full functionality of the Amplify digital tools and features.

Sincerely,

The JAMS Gr Science Team & Seattle Public Schools Science Department

[Logo]
This packet covers Chapter 3, Exploring Wind and Pressure, Lesson 3.3

- Part 1: Preparing your scientific discussion
- Part 2: Posting your scientific discussion Investigating Wind
Lesson 3.3 Part One Discussion!

WARM-UP: Look at the data in the table below. Then answer the two questions using the data.

<table>
<thead>
<tr>
<th>Weather Event</th>
<th>Local Surface Water</th>
<th>Amount of Rain</th>
<th>High Temperature Before the Storm</th>
<th>Wind Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storm 1 (before lake)</td>
<td>low</td>
<td>mild. 6 cm (2.4 in)</td>
<td>very high. 39°C (102°F)</td>
<td>light</td>
</tr>
<tr>
<td>Storm 2 (after lake)</td>
<td>high</td>
<td>moderate. 12.7 cm (5 in)</td>
<td>high. 27°C (81°F)</td>
<td>strong</td>
</tr>
<tr>
<td>Storm 3 (after lake)</td>
<td>high</td>
<td>severe. 20.3 cm (8 in)</td>
<td>very high. 40°C (104°F)</td>
<td>light</td>
</tr>
<tr>
<td>Storm 4 (after lake, July of this year)</td>
<td>high</td>
<td>very severe. 30.5 cm (12 in)</td>
<td>very high. 39°C (102°F)</td>
<td>very strong</td>
</tr>
</tbody>
</table>

The last claim that is used to explain the severe rainstorms in Galetown is: *Stronger winds caused Galetown to have more severe rainstorms.*

Do you think the **wind** is affecting the amount of rain in Galetown? Why do you think this?

*(Sentence starter: I think the wind is/is not affecting the amount of rain because...)*
Preparing for Science Discussion:

“What caused Galetown to have more severe rainstorms this summer than in previous years?”

Today you will be posting your claim, with evidence and reasoning on a Schoology Discussion to share with your classmates and teacher!

Let’s take a look at the three claims we have to answer this question.

➡ Draw a star below next to the claim(s) you think affected Galetown’s rain.

What caused Galetown to have more severe rainstorms this summer than in previous years?

Claim 1: The lake that was built near Galetown caused it to have more severe rainstorms.

Claim 2: Warmer weather caused Galetown to have more severe rainstorms.

Claim 3: Stronger winds caused Galetown to have more severe rainstorms.

Turn the page to start writing your Claim!
Part One: CLAIM

Write your claim below. This could be one of the claims above, OR you could make your own claim!

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Claim Checklist:
- No “I think” statement
- Answers the question
- Uses a complete sentence

Example: _____________ caused Galetown to have more severe rainstorms this summer than in previous years.

Okay, time to check your work!
Part Two: EVIDENCE

For the Schoology discussion you will need ONE piece of evidence. However, if you would like to provide more evidence- that’s awesome! Just make sure you have reasoning for each 😊

Write your evidence to support your claim. Don’t forget to use a sentence starter and your source. Your source could be an article, the SIM, a data table etc.

- “One piece of evidence according to ________, is...”
- “Another piece of evidence as seen in __________ is...”

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Evidence Checklist:

☐ Sentence starter!
☐ Source (“according to...”)
☐ Observations/Data
☐ (no opinions or inferences)

Okay, time to check your work!
Part Three: REASONING

Now, let’s **connect** your **evidence** back to your **claim**!

Write your reasoning to connect your evidence back to your claim.

Sentence starter ideas: **This means…**    **Therefore…**    **Since…**

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Reasoning Checklist:

☐ Sentence starter!

☐ This is your thinking! How does your evidence connect to your claim?

This should be your longest section by far!

Okay, time to check your work!

Time to post for other scientists in our community to review!
Instructions:

1. On Schoology, find your teacher’s Discussion for the week. You will see this speech bubble picture.

2. Type your claim, one piece of evidence, and one piece of reasoning into the discussion. These are sections you already did on the previous pages that have a dotted line.

3. Write a thoughtful comment or question to at least one other classmate. This could be a question, a build onto their answer, or evidence to counter their argument. It should go further than “I agree/ disagree” 😊

Some sentence starter options:

- This makes me wonder....
- I would like to add on that...
- Can you tell me more about...?

Up Next: Lesson 3.3 Part 2

- Finishing up your post on Schoology Discussion
- Responding to a classmates’ post
Lesson 3.4    Part Two Discussion!

WARM-UP:

By the end of today you will need to have the following completed. Go through the list so you know what you need to get done today. Check off items that you already finished yesterday.

😊😊

Instructions:

☐ 1. On Schoology, find your teacher’s Discussion for the week. You will see this speech bubble picture.

☐ 2. Type your claim, one piece of evidence, and one piece of reasoning into the discussion. These are sections you already did on the previous pages that have a dotted line.

☐ 3. Write a thoughtful comment or question to at least one other classmate. This could be a question, a build onto their answer, or evidence to counter their argument. It should go further than “I agree/ disagree” 😊

   Some sentence starter options:
   - This makes me wonder....
   - I would like to add on that...
   - Can you tell me more about...?

☐ 4. OPTIONAL *but really interesting: Read the article “Types of Rain” on the following pages. Fun Fact: The article talks about Hilo, Hawaii but it works the same way for us in Washington! Cool, huh? Don’t forget your active reading skills!
Types of Rain

What causes rain? Some rain forms when warm air parcels rise high into the troposphere and water vapor in the air condenses into liquid. However, that’s not the whole story—the formation of rain can be more complicated than a single rising air parcel. One type of rain, called orographic rain, can form when air parcels run into certain landforms on Earth’s surface. Another type of rain, called frontal rain, can form when air parcels of different temperatures collide.

Orographic Rain

Hilo, Hawaii, is one of the rainiest places on Earth, receiving more than 100 inches of rain each year. However, just a few miles away from Hilo, on the same island, is a desert landscape that only gets about one tenth as much precipitation as Hilo does! How is this possible? The answer has to do with a kind of rain called orographic rain. Hilo is located on the eastern side of Hawaii, between the ocean and high mountain peaks. These landforms are an important factor in Hilo’s weather. The wind almost always blows toward Hilo from the ocean, moving warm, humid air parcels in Hilo’s direction. As air parcels hit the island, they are forced upward by the mountains. The air parcels lose energy as they rise, and water
vapor in the parcels condenses into liquid water, producing clouds and frequent rain. This type of rain is called orographic rain.

Hawaii’s mountains are also a factor in the weather on the other side of the island, where there is a desert landscape. Because the clouds produce so much rain on the Hilo side of the mountains, there is very little water left in the air once it reaches the other side. The mountains block rain from reaching the other side. This is called a rain shadow, and it means there can be a desert just a few miles across the mountains from one of the wettest places on Earth.

**Frontal Rain**

Wind is another factor that can contribute to rainfall. Winds can blow in all directions, moving air parcels around. Sometimes air parcels moving in different directions run into each other. A place where two air parcels meet is called a front, and fronts are places where dramatic weather tends to happen. Rain formed at fronts is called frontal rain.

Why does so much wet weather happen at fronts? Frontal rain can form when a cold air parcel and a warm air parcel meet. The air in cold air parcels is denser and heavier than the air in warm air parcels. When the parcels meet, the dense air of the cold front moves underneath the less dense air of the warm front, pushing the warm air up into the troposphere. From there, the story of frontal rain is just like other types of rain formation: the warm air cools as it rises, causing water vapor to condense and form droplets of liquid water. The droplets collide to form larger drops, and when they get heavy enough, they fall as rain.

The place where two air parcels meet is called a front. Frontal rain forms when a mass of cold, heavy air moves under a mass of warm, light air and forces the warm air parcel upward.
It works the same way for us too! Below is a map showing Washington, and the star is showing us in Seattle!

Western Washington (that’s us!) is rainy, while Eastern Washington is dry!

Up Next Week:

- Project (Comic Strip Adventure!)
- Weather Patterns Unit Final “Check for Understanding”