

6th Grade Science 1/13/20

Essential Question: What else can gases do?

CW: Lesson 5.1

HW: Reading 5.2 - Pgs. 46-49 Write in the margins and answer questions

Agenda

1. Question of the day
2. Reading 4.1
3. Activity 5.1 and 5.2
4. Begin Reading 5.1

Open Ended Question

Write silently for three minutes: What job do you think you'd be really good at? Why?



Reading 4.1 – How Can I Model the Things Gases Do?

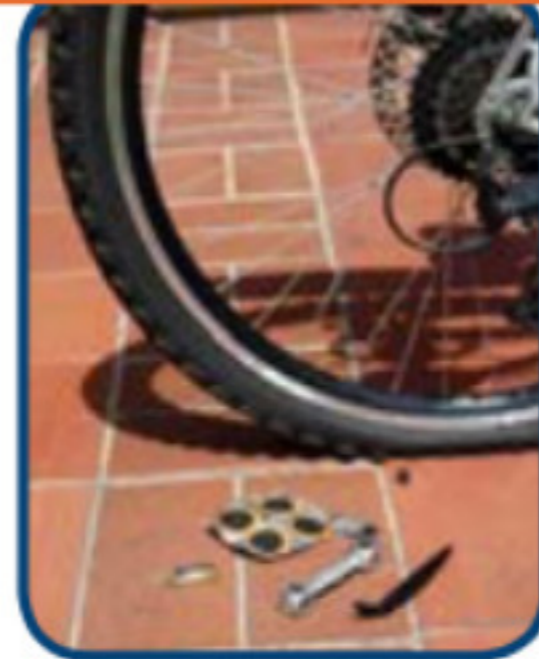
Getting Ready

Have you ever played in a pool or lake and tried to stay underwater as long as you could? Maybe you can hold your breath a long time underwater. Maybe you can only hold your breath for a few seconds. Imagine what it would be like if you did not have to worry about holding your breath underwater. Imagine if you could breathe underwater just like you breathe out of the water. Scuba divers use air tanks to help them breathe underwater. In this reading, you will learn about which characteristics of air make it possible to breathe underwater with scuba tanks.



You Can Add More Air into a Scuba Tank

In class you observed air being added into a flask. People who make scuba tanks put a lot of air into the tanks. You can add air into many other things. For example, you also have to fill tires with air so you can ride your bike. You have to add air into an air mattress until it is filled enough so you can sleep on it. You also add air to a beach ball if you want to play with it.



You Can Take Some Air out of a Scuba Tank

One of the ways scuba tanks work is by having someone add air. When a tank is empty, more air can be added to it. As a scuba diver breathes, they take some air out of the tank, but some air stays in the container. Imagine if the only way to take air out of a tank was to take all of it out. If that were true, then scuba divers would need one tank for each breath they would take underwater. However, that is not the case. Scuba divers can take hundreds of breaths from one tank of air. That is because when they take a breath, scuba divers are only taking some air out of the tank. The rest of the air stays in the tank.

Open Ended Question

Describe what happens to the air as you blow up an inflatable beach toy or an air mattress. Imagine that you are trying to describe the process to another student who was absent from school and does not know what you know about air. Make sure you describe what it means to add air to something.

Draw It

Can you add gases to a closed container? Draw a model of what happens to the gas particles.

Pg. 42

Lesson 5.1 – What Else Can Gases Do? And Developing Models

What was the point of the last lesson?

What will we do?

We will use a large syringe to investigate two more characteristics of air. We will also create models of what we would see if we could look at the air inside the syringe up close.

Procedure

- Fill the syringe with air by pulling the plunger back halfway.
- Block the end of the syringe with your finger.
- While keeping the end of the syringe blocked with your finger, push the plunger in as much as you can. Let go of the plunger.
- Record your observations.

Class Discussion

What did we feel happening?

Open Ended Question

What happened to the air as you pushed the plunger in?

Open Ended Question

Can water be compressed the same way as air was compressed?

Creating Models

If you had a special instrument that would allow you to see inside the syringe, what would the smallest parts of air look like? Create models of what you would see if you focused on one tiny spot:

Model 1: When the syringe is filled with air

Model 2: After pushing the plunger in

Model 3: After pulling the plunger back

Create a model to explain what air is doing inside a syringe

Green Card - I'm
the artist - I can
ask and answer
questions.

Take notes during
CSG

Possible
questions:

How can you
show...

Could you add...

... ..

Answer questions pg. 44

3. Compare Models 1, 2, and 3. (Be sure to describe the details of each model.)

4. Why was it important during this activity to keep the end of the syringe blocked by your finger?

5. Use your model to describe to your friend what compression means.

6. Use your model to describe to your friend what expansion means.

What are all the observations you have made about air so far?



Collaborate!

What are all the observations you have made about air so far?

Do gases have a definite shape or take the shape



of their container? What is your evidence?

Collaborate!

Do gases have a definite shape or take the shape of

Open Ended Question

Do gases have a definite volume? What is your evidence?

Open Ended Question

What characteristics of air did you observe with the syringe?

Begin HW pg. 46

Reading 5.2 – How Can I Model the Things Gases Do?

Getting Ready

Think about a sponge used for cleaning. If you have a sponge at home, you can use it to do this activity. Hold a wet sponge in one hand and squish it. Squeezing the sponge makes it smaller. You might be able to squeeze a large sponge to fit in one hand. Because you can push (or press) the sponge, you can say that the sponge can be compressed.

Think about what happens when you compress a sponge with your hand. Then think about opening your hand. The sponge will expand and open back up into its original shape. Sponges are not the only things that can compress and expand. In this reading, you will learn how air can compress and expand, a little like a sponge.

