

Exploring Some Interesting Phenomena



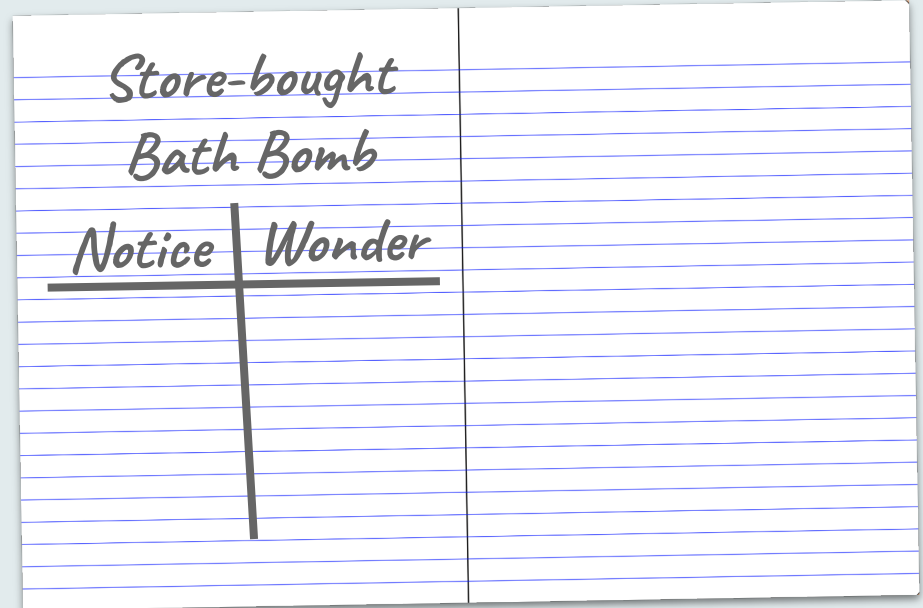
Turn and Talk

- Have you heard of bath bombs before?
What is your experience with bath bombs?
- What do you predict will happen when the bath bomb from the store is placed in a bowl of water?

Set Up a Notice and Wonder Chart



Make a T-chart in your science notebook and record your noticings and wonderings.



Use this space to record what you notice and wonder about the store-bought bath bomb, before and after we add it to water.

Noticing and Wondering



Whole-Group Discussion

- What are some things we noticed about the store-bought bath bomb, before and after we added it to water?

Observing Bath Bombs Up Close



Discuss with your lab group:

What **types of observations** would you want to try to collect about the homemade bath bombs to **help you figure out what happens when bath bombs are added to water?**

The supplies listed below will be available to your team.

- Samples of 3 different homemade bath bombs made from 4 possible different recipes (A, B, C, or D)
- Paper plates, toothpicks, and a pipette or eye dropper
- Clear plastic cups, water from the sink, and paper towels for cleaning up

Noticing and Wondering



Whole-Group Discussion

How did these homemade bath bombs compare to the store-bought ones?

- Did they do the same thing?
- What was similar? What was different?

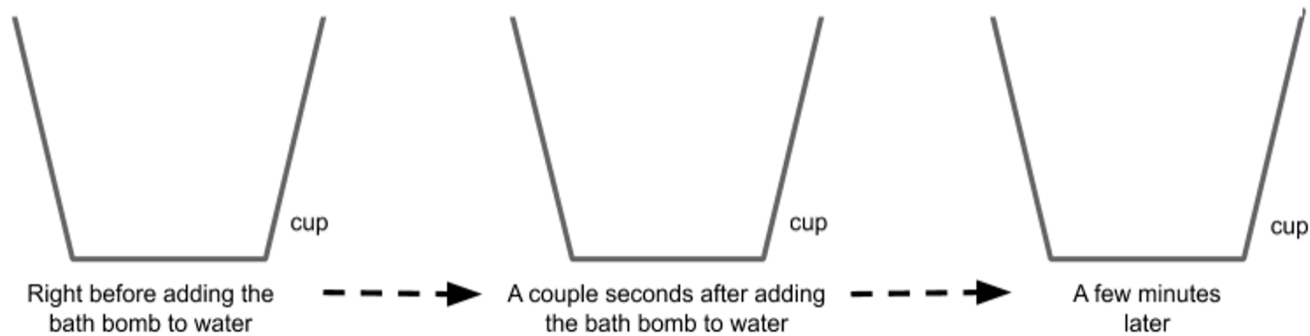


Developing initial models



Show what happened to the solid bath bomb and where the gas bubbles appeared in the system. Use pictures, symbols, and words to represent this.

Show what you saw happened to the solid bath bomb **and** where the gas bubbles appeared in the system. Use *pictures, symbols, and words* in your model to represent this.



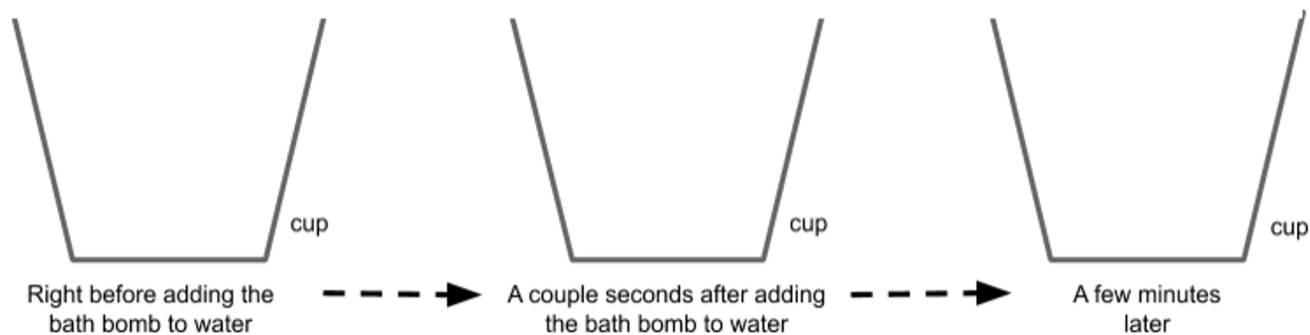


Developing initial models



Label the following locations in your diagram with the corresponding letter:

- A. A spot in the bath bomb before adding it to the water.
- B. A spot in the water right before adding the bath bomb to it.
- C. A spot in the liquid remaining in the cup a few minutes after adding the the bath bomb to the water.
- D. A spot inside of a gas bubble a couple seconds after adding the bath bomb to the water





Developing Initial Models



Then develop a model showing how the matter in the system (at locations A-D) compare, at a scale smaller than you can see. Each circle represents a “zoom-in” of that part of the system. Use the large circle in the middle to show what you think was happening to this matter that helps explain:

1. What happened to the solid bath bomb?
2. What caused the gas bubbles to appear?
3. What caused the other changes you observed?

Now show what you think was happening at a **scale you can't see**. Use the circles to show zoomed-in views at different points in time. Annotate these to explain what you think is happening to the matter in each of the five zoomed-in circles.

Before putting these together
A tiny sample of the bath bomb

Right after the bath bomb is added to the water

As gas bubbles appear
A tiny sample of the gas in a bubble

A tiny sample of the water

A tiny sample of the liquid

Key:

Comparing Models and Explanations



Small-Group Discussion Protocol

- Give each group member an opportunity to share their model and explanation with the group.
- When it is your turn, turn your science notebook around so that your model faces others in your group.
- As your group notices things about each diagram, record the following in pencil (lightly):
 - Place a ✓ by parts of your model or explanations that are similar to those shown on other diagrams from the group.
 - Place a ? by parts of your model or explanations that are different or where your group is less certain.

Developing Norms for Our Discussions

Classroom Norms	
<p>Respectful</p> <p>Our classroom is a safe space to share</p>	<ul style="list-style-type: none"> • We build each other up by providing support and encouragement. • We share our time to talk We give others time to think and share. • We critique the <i>ideas</i> we are working with, but not the <i>people</i> we are working with.
<p>Equitable</p> <p>Everyone's participation and ideas are valuable</p>	<ul style="list-style-type: none"> • We monitor our own floor time. • We encourage others voices who we haven't heard from yet. • We give people time to think. • We recognize and value that people think, share, and represent their ideas in different ways.
<p>Committed to our community</p> <p>We learn together</p>	<ul style="list-style-type: none"> • We come prepared to work toward a common goal. • We step up to share our own thinking to help us all learn. • We listen carefully and ask questions to help us understand what others mean. • We speak clearly and loud enough so everyone can hear.
<p>Moving our science thinking forward</p> <p>We work to figure things out</p>	<ul style="list-style-type: none"> • We use and build on other's ideas. • We back up our ideas with evidence, ask for evidence from others, and suggest ways to get additional evidence. • We are open to changing our minds. • We challenge ourselves to think beyond the obvious.

Targeting a Norm to Focus On



Look at our class norms one more time. Which of the norms do you think might be particularly challenging to follow if we are out of practice? Which do we need to intentionally work at to get good at? What are some strategies that could help everyone adhere to this norm?

- Choose one norm from the sheet that you personally will work on for the rest of class.
- Share the norm you decided to work on with a partner, and tell them why it is important for you.

Setting Up a Reference Page for the Class Norms



Add the class norms handout to the inside front cover of your notebook.



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Equitable Everyone's participation and ideas are valuable.	<ul style="list-style-type: none">• We monitor our own time spent talking.• We encourage others' voices who we have not heard from yet.• We recognize and value that people think, share, and represent their ideas in different ways.
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Moving our science thinking forward We work together to figure things out.	<ul style="list-style-type: none">• We use and build on other's ideas.• We use evidence to support our ideas, ask for evidence from others, and suggest ways to get additional evidence.• We are open to changing our minds.• We challenge ourselves to think in new ways.

A blank page from a notebook with horizontal blue lines. The page is positioned to the right of the handout table, representing the inside front cover of a notebook where the handout would be placed.

Developing an Initial Consensus Model Discussion



As A Class

Now let's develop a whole-group record of what we agree on and where we have competing ideas across the initial models and explanations.

- What do we all seem to agree on?
- What do we disagree on?
- What are some new ideas that we may want to consider?

How did we do with our focal norm?



Turn and Talk

- How did you do with practicing the norm you selected to work on?
- How did the norms help us talk together and come up with some ideas about what we think is happening?

→ Be prepared to share these with the whole class.

Focal Norm for Today

Reflect and Plan

- How did you do practicing the norm you selected to work on during the last class?
- Silently choose another norm from the norms chart that you will intentionally work at and monitor today to help our learning community grow stronger and more productive for everyone.

Related Phenomena



Add a “Related Phenomena” section to your science notebook and record:

- Any other experience that you have had that reminds you of what you saw happen with the bath bombs.
- Other phenomena that might happen due to the same sorts of things that caused the bath bomb to do what it did.

<i>Related Phenomena</i>	

→ Be prepared to share these with the whole class.



What questions do you now have?

Find any questions that you have about the phenomena we have explored so far (including any of our related phenomena).

Look back at

- our Notice and Wonder charts from our bath bomb investigations,
- your initial model and our class consensus model, and
- our list of related phenomena.

Then write one question per sticky note.

Write in marker--big and bold.

Put your initials on the back in pencil.

Driving Question Board (DQB)



As a Class

Take out your sticky notes with questions on them. Bring them and your notebook to our Scientists Circle.

Let's build our Driving Question Board (DQB).



Driving Question Board (DQB) Protocol

- The 1st student reads their question aloud to the class, and then posts it on the Driving Question Board (DQB).
- Students who are listening should raise their hands if they have a question that relates to the question that was just read aloud.
- The 1st student selects the next student whose hand is raised.
- The 2nd student reads their question, says why or how it relates, and then posts it near the question it most relates to on the DQB.
- The student selects the next student. We will continue until everyone has at least one question on the DQB.

Focal Norm for Today

Reflect and Plan

- How did you do practicing the norm you selected to work on during the last class?
 - What was easy? What was difficult?
 - What do you want to do differently this time?
- Silently choose another norm from the norms chart that you will intentionally work at and monitor today to help our learning community grow stronger and more productive for everyone.

Ideas for Investigations

What kind of investigations could we do and/or what additional sources of data might we need to figure out the answers:

- To a question you had?
- To a question from your partner?
- To a question someone else shared in the class?



Add your ideas to a new notebook page titled “**Ideas for Investigations.**”

After a couple of minutes, turn and talk through additional ideas with a partner and record these in your notebook as well.



→ Be prepared to share these with the whole class.

Sharing Ideas for Investigation



As a Class

Let's make a public record of ideas for future investigations we could pursue.

Ideas for Investigation



How did you do with your focal norm?

Reflect Silently

- How did you do with practicing the norm you selected to work on?
- How did the class do as a learning community today? What did we do well? What could we improve on?

→ Be prepared to share these with the whole class.

Exit Ticket

Think about our class norm, "Equitable."

On your own, answer the following questions on a notecard:

- Why is it important that we hear what other people say?
- How did this norm help us with hearing each other?
- What did we do that helped you feel your ideas were heard?

→ Turn in your notecard when you are finished. Be sure you have included your name on your notecard.