

LESSON PLAN 1

TITLE Milky Way Lab Day 1

SUBJECT Science

LEARNING OBJECTIVES

Students review the role of the five senses in making observations.

Students practice making inferences based on observations.

Students will make predictions based on information learned in class.

Students will be able to explain in their own words what surface tension is.

ASSESSING LEARNING

Students will fill out the predication page of the Milky Way Lab packet .

Students will use fist to five to let the teacher know their understanding of terms such as observation, inference, and surface tension.

RELATED NEW YORK STANDARDS OF LEARNING

P-PS1-1. Ask questions and use observations to test the claim that different kinds of matter exist as either solid or liquid.

MATERIALS NEEDED

Milky Way Lab packet by SCI21 Boces

PROCEDURE

INTRODUCTION (5 mins)

- Say: Based on our lab last week, who can tell me what an observation is? What did we make observations about last week?
 - Get a hand, if they need help, get another.
- Say: This week we will continue to work on those skills as well as making predictions. The most important vocabulary words you will see today are procedure, prediction, observation and inference.

MILKY WAY LAB PACKET (15 mins)

- Hand out the Milky Way lab. Ask students to write their name.
- Say: This week we will be doing a lab that involves milk, food coloring, and dish soap. Before our lab tomorrow we will go over what this lab is about and make predictions about what will happen tomorrow during our lab.
- Say: We know what the states of matter are. What are they?
 - Get two hands.
- Say: This week we will focus on liquids. And liquids have surface tension. Water, milk, and cream are made up of molecules or particles as we talked about last week that have

positive and negative charges on their surface. Just like magnets! And just like those magnets, these charges allow them to attract and repel other molecules.

MAGNET ACTIVITY (8 mins)

Have four students volunteer to be molecules. Two will be negatively charged and two will be positive. The two negative students will be pushed apart by the teacher as they repel each other and same with the positive. But they will buddy up (high five) and be attracted to each other when in negative and positive pairs. Now we know how molecules work a little better.

- Say: Water is made of positive and negative molecules pushing each other which creates a little “skin” that forms on the surface of the water to keep the edges of the water together even though that isn’t quite right scientifically. Basically, the water molecules are more attracted to each other than they are the air.
- Say: In this lab we will be talking specifically about milk! Milk is a white liquid produced by mammals and is the primary source of nutrition for young mammals. Did you know that milk is made mostly of water?! And it also contains vitamins, minerals, fats, and proteins.
- Say: Water has a lot of surface tension. Because milk is mostly water, it also has a high surface tension while also having lots of fats and proteins.

VIDEO

- They will watch a video to better understand surface tension. (1 min)
[At-Home Learning Presents: Teacher Time | What is surface tension?](#) PBS
- Say: So we know that milk is a part of this lab. The other important liquid in this lab is dish soap! Dish soap is a liquid that can lessen the surface tension of a liquid by breaking all the fats and proteins in a liquid. That is why we use soap to get rid of the dirt and oils from our hands, because dirt and oils have proteins and fats that the soap breaks that stuff down.
- Say: Therefore, when a drop of liquid dish soap is added to milk, the surface tension of the milk is reduced because the soap breaks down the proteins and fats in the milk..But it is hard to see the soap actually breaking down the fats and proteins. So we are going to add food coloring to the milk tomorrow to help us see the proteins and fats breakdown. I know that was a lot!
- Say: So tomorrow we’re going to put four dots of food coloring in milk and not swirl them. Then we are going to add a dot of dish soap and see what happens.
- Say: Turn to the prediction page in your packet. We are going to use the knowledge we learned about surface tension and dish soap to figure out what we think will happen tomorrow. Please do a pair and share with your neighbor about what you think will happen tomorrow when we add the dish soap to the milk.
- Give 15 mins for them to make their predictions.
- Have 4 people share their thoughts.

CLOSURE (3 mins)

- Say: What is one thing you learned in science today? What activity did people like the most?
 - Get three or four hands.

DIFFERENTIATION

LESSON PLAN 2

TITLE Prime and Composite numbers

SUBJECT Math

LEARNING OBJECTIVES

Students will be able to recognize the difference between composite and prime numbers(do not have any factors except 1 and themselves).

ASSESSING LEARNING

Students will answer the teacher's questions.

Students will fill out pages 159-164 of the READY math book.

Students will complete prime and composite exit ticket.

RELATED NEW YORK STANDARDS OF LEARNING

NY-4.OA.4 - Determine whether a given whole number in the range 1-100 is prime or composite.

MATERIALS NEEDED

READY Math workbook 159-164 (district mandated resource)

Working computer

Document camera

Exit ticket

PROCEDURE

INTRODUCTION (4 mins)

- Say: On monday we were talking about factors and factor pairs of a whole number. Who can remind me what a factor is?
- Get two hands (I expect there to be very few hands).

Write on the board: A factor is a number that when multiplied by another number equals a product. Make students repeat what is on the board twice.

- Say: So that means if you are asked to find the factors of the number 8, you are looking for all the numbers that multiply together to make 8. Like 8×1 and 2×4 (write that on the board) Now lets try with the number 5. What numbers multiplied together make 5?
- Get at least one hand.
- Say: So now that we remember what a factor is, we are going to be talking about two new terms. Prime and composite numbers!

On the board write Prime and Composite.

- Say: There are some numbers that only have two factors. A number that can only be divided by 1 and itself is called a prime number. That also means a prime number can only be multiplied by 1 and itself. Also known as PR 1 ME (one and me meaning itself).
- Say and write: 3 is a prime number because 3 can be divided by only two numbers. 1 and 3 itself. The only way we can make 3 when multiplying is 1×3 . Does $1 \times 2 = 3$? Does $3 \times 2 = 3$?
 - Let students respond (whole group).
- Say: Now let's look at the number 36. What are the factors? How can we make 36?
 - Get three or four hands
- Say: How many factors did we find? (get one hand) So that means this number is composite.
 - Have students repeat composite.
- Say: Now let's look at 23. What are the factors of 23?
 - Get three or four hands
- Say: How many factors did we find? (get one hand) So that means this number is prime.
- Say: Let's look at page 159. Please open your books to 159.

Ask a student to read the question.

- Say: We already did this! So Janae has 36 pennies and Nate has 23 pennies. Let's first focus on Janae's pennies.
- Say: Can we draw an array or grouping of 36 pennies evenly? Well from my multiplication skills I know that $12 \times 3 = 36$. So we can draw 36 pennies in 3 rows of 12. Is there any other grouping we could do with the pennies? Yes $4 \times 9 = 36$ so that means that 1, 3, 4, 9, 12, and 36 are factors of 36. Does 36 have more factors than 1 and 36? Yes, so it is NOT a prime number. It is a composite number.
- Say: Let's try regrouping 23. Model on the board trying to regroup 23 into 2 and 3 groups. Both times it doesn't work. So 23 is prime because there are no equal ways to regroup that number. The only factors of 23 are 23 and 1.

Go to page 161 - make sure no one is going ahead.

- Say: Page 161 is still about the same penny question.

Remind students not to worry we already did that math! Answer questions with students.

- Say: What are some factors we wrote down for Janae's 36 pennies?
 - Get one or two hands.
- Say: That question is asking what numbers can divide 36 or multiply together to get 36. Because there are multiple answers that means that 36 is a composite number.
- Say: Is 23 a prime or composite number? Again that means are there any numbers that can multiply to get 23 other than 1 and 23?
 - Get one hand.
- Say: So what does prime numbers mean?
 - Get one or two hands.

- Say: And what does composite mean?
 - Get one or two hands.
 -
- Say: Now I am going to do 6,7,8 with your help! And then we will have a short brain break and then you will try to do a couple problems on your own as we always do. Nothing new, you guys know what to do .

Ask a student to read a problem - circle the important information together.

- Say How many balls are there? And she wants an equal amount of balls in each bin. So is there an equal way to split up 17?
 - Get a hand.
- Say: How can we find that out? So if 17 can only be split evenly into one group of 17? What are the factors we know go into 17? What numbers can we multiply to get 17?
 - Get a hand.
- Say: So the only numbers are 1 and 17 which means it's a prime number because
- Repeat after me: Prime numbers are numbers that can only be made by multiplying 1 and itself together. Lets try with the numbers 18 and 19 What factors are there of those numbers? We automatically know that 1 is a factor and the number itself.
 - Have students answer the questions above.
- Say: Now try page 163 and 164 on your own. I will read the problems to you!

Walk around the room and help out but this is a way for me to see how much you understand what we just learned. So I do want you to try your best even if it might not be perfect! Put a timer on the board with the remaining time they have should be about nine minutes.

Once the timer is up, tell students to finish the problem that they are on and explain that we will work on this tomorrow and to be done with math they need to do their exit tickets. Ask a student who is finished with their work or has been working hard during this period to help pass out the exit tickets.

Read the exit ticket question which is: In your own words write your definition of what a prime number is and what a composite number is. Please give one example for each.

CLOSURE (3 mins)

- Say: Who can tell me at least one thing that they learned today in math?
 - Get three or four hands.

DIFFERENTIATION

Student A: Will only need to do page 163. Help fill out exit ticket while students are working on their own.

LESSON PLAN 3

TITLE Oobleck Lab Day 2

SUBJECT Science

LEARNING OBJECTIVES

Students will be able to compare solids, liquids, and gasses based on their basic properties.

Students review the role of the five senses in making observations.

Students practice making inferences based on observations.

ASSESSING LEARNING

Students will use their senses to write at least two observations in each box of the table on the bag activity page.

Students will write their inferences in the table on the bag activity page.

Students will share to the group one thing that they learned in this lesson.

RELATED NEW YORK STANDARDS OF LEARNING

5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.

2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

MATERIALS NEEDED

Oobleck lab worksheet packet

A plastic bag filled with air

A plastic bag filled with orange juice

A plastic bag filled with soil

Box of crayons

Oobleck states of matter slides

PROCEDURE

INTRODUCTION (4 mins)

- Say: Who can tell me what an observation is?
 - Get a hand, if they need help, get another.
- Say: Who can make an observation about this object (box of crayons)? Remember observations only use our five senses, we are **not** guessing what the object is. We know that this is a box of crayons, but what do you notice/observe about it?
 - Get a hand and then pull sticks if there are not many hands.

BAG GAME (15 mins)

- Say: Today we will continue talking about observations, inferences and predictions. Please open your packets to the Bag Game Activity. We will also continue playing the bag game with the other two bags. Who can tell me what observations they made about the first bag? (Hold up the first bag from yesterday which had the soil)
 - Get two hands.

Using the bag game worksheet, remind students to fill out observations first using the five senses. Then make an inference about what the object is.

- Say: I will be giving you all four minutes to write down observations about the next bag.
- Move around with the bag filled with orange juice. Allow students to touch the bag, smell the bag, but not taste the bag.
- After the time is over Say: What are observations people made about bag two?
 - Get three hands.
- Say: What do you think is inside the bag? What is your inference about the bag?
 - Get two different hands.

Repeat with bag three.

- Say: Now we will think about if the bags had liquids, solids, or gasses inside them. Raise your hand if you would say that bag number one is a solid object?
Raise your hand if you think that bag number two is a liquid object?
Raise your hand if you think bag number three is holding air which is an example of a gas?

SLIDES (10 mins)

Use in tandem with slides on board.

- Say: These are all states of matter!! Who has heard about states of matter before?
- Say: First we have to ask what is Matter? Matter makes up everything! Anything that takes up space is called matter. Air, water, rocks, and even people are examples of matter. Different types of matter can be described by their properties.
- Say: What is a solid? Who can tell me a solid object in this room?
 - Get two hands.
- Say: What makes things a solid vs a liquid is that the tiny pieces of matter are also called particles. The particles in a solid are really close together.
- Say: What is a gas? Who can give me an example?
 - Get two hands.
- Say: A gas is something that's tiny pieces of matter or the new word particles are moving really fast and have no one shape. Think about smoke from a candle, it keeps moving and you can't pick it up. It will keep expanding until it hits the walls in the room it's in.
- Say: And finally what is a liquid? What are examples of liquids?
 - Get two hands.
- Say: A liquid is something that is in between a solid and a gas! Liquids particles are closer together than a gas but looser and more wobbly than a solid.

STATES OF MATTER SIMON SAYS (8 mins)

- Say: Let's understand this better! Let's play the states of matter game. It's kind of like Simon says but with the states of matter! You are the particles. When I say SOLID you will all stand closely together and shake just a little bit. BUT remember to keep your hands to yourself. When I say LIQUID you stay close together but flow and slide past each other and keep moving. And when I say GAS you all separate, don't touch, and move quickly!

Play games for five minutes or longer depending on student engagement/enjoyment.

Ask students to sit down. Say: What did you learn from playing the game

- Get three or four hands.

CLOSURE (3 mins)

- Say: What is one thing you learned in science today? What activity did people like the most?
 - Get three or four hands.

DIFFERENTIATION

Student A: Will only need to write down one observation during the bag game. He is also allowed to stand in the back while writing.

OOBLECK LAB PACKET

OOBLECK LAB: Observation, Prediction, and Inference Practice

Expectations/ Checklist:

- Listen and please do not talk to the teacher when they are speaking
- Raise your hands if you have thoughts or questions
- Listen to classmates when they share their thoughts
- Follow safety instructions given by the teacher
- Complete pages to the best of your ability
- This packet will be graded on effort, understanding the new ideas, and packet completion
- Mr.Bingham and Ms.Kanner believe that you can finish this packet and learn from this lab!

OOBLECK LAB

What to try	What do you think will happen	What happened	Behaved like which state of matter (liquid, solid, gas)
Tap the oobleck			
Pour oobleck onto your hand			
Squeeze the oobleck in your hand			
Try an experiment of your own: _____ _____ _____			

Other observations or notes:

VOCABULARY SHEET

Matter: _____
_____E

Example: _____

Solid: _____

Example: _____

Liquid: _____
_____E

Example: _____

Gas: _____

Example: _____

Viscosity: _____

Example: _____

Non Newtonian Fluid: _____

Example: _____

Mixture: _____

Example: _____

Observation: _____

Example: _____

Prediction or Hypothesis:

Example: _____

Inference: _____

Example: _____

List the observations you make.

After you make several observations, discuss what you observed to see if you are prepared to make an inference.

If you have enough information, make an inference.

	Observations	Inference
Bag 1		
Bag 2		
Bag 3		

Matter: anything that has weight and takes up space.

Liquid: intermediate state of matter between a gas and a solid.

Solid: a state of matter that maintains its own shape instead of conforming to the shape of its container

Gas: a state of matter that has no fixed shape and no fixed volume.

Viscosity: You can think of viscosity as how thick a liquid is. A liquid with high viscosity - that is thick, like peanut butter - will flow slowly.

Non Newtonian Fluid: The viscosity of an object can change when under force to either more liquid or more solid.

Mixture: a physical combination of two or more substances that aren't chemically joined.

Observation: seeing something and making notes about it.

Prediction or Hypothesis: an educated guess about what you think will happen based on what you know.

Inference: making a conclusion using patterns and knowledge you already know, along with what you observe.

LESSON PLAN 4

TITLE Spelling Packet page 3

SUBJECT English Language Arts

LEARNING OBJECTIVES

Introducing the spelling words for the week.

Students will discuss the different sounds “u” can make.

Students will review syllable structures.

ASSESSING LEARNING

Students will have page three of their spelling packets completed.

Students will let the teacher know how they feel about the lesson through “tumbometer”.

Students will be given immediate feedback from the teacher as they finish their spelling packet.

RELATED NEW YORK STANDARDS OF LEARNING

4RF3: Know and apply grade-level phonics and word analysis skills in decoding words.

3RF3b: Decode multisyllabic words.

MATERIALS NEEDED

Printed Spelling Packet

Document camera

PROCEDURE

INTRODUCTION (5 mins)

- Say: What words have we been focusing on this week? If you had to choose a favorite vocab word from our list what would it be?
 - Get two hands.
- Say: This week we’re working on words with ou sounds and io sounds. As we wrote in our planner, let's quickly go over the spelling words for this week. I’ll read them and you, follow along.
- Read aloud spelling words
- Have the spelling packet on the document camera while reading the spelling words that are on the first page of the packet.

SPELLING PACKET PAGE 3 (20-25 mins)

ANALOGIES

- Have students turn to page three of their spelling packet.
- Say: who can tell me what an analogy is? Remember we have seen them every week.
 - Get two hands.

- Say: An analogy compares two things that are mostly different from each other but have some traits in common. For example a leaf is to a tree as a petal is to a flower. Both the leaf and the petal are part of the tree or flower.
- Say: Let's do the first one together. The first one is box is to square as ball is to round. I know that we are talking about shapes so I am going to choose the word round. Box is to square as ball is to round. I'm putting on a timer for 2 minutes to do the next 4 on your own.
- Put a timer on the board. Move around the room and make sure students are on task.
- Say: I will use the sticks to call on people so be ready to be called on.
 - Pick a popsicle stick with a student's name on it.
- While walking around say: You can ask a friend at your table if you are stuck, but I would like you to try your best to do it alone. Remember we are at a level one volume when asking a friend. Try your best to do it on your own unless you've tried and really don't understand the analogies.
- When the timer goes off, we will check the answers together and I will be using popsicle sticks to call on students.
 - Check answers as a group. Call on students and write the correct answers on the teacher's packet as you go.

IDIOMS

- Say: Who can tell me what an idiom is, everyone's hand should be raised.
 - Get on hand. If correct, give praise and restate. If incorrect, get another hand. An idiom is: phrases that have a meaning that is very different from its individual parts.
- Say: Let's do the first one together.
 - Go through the first idiom the same way you did with the analogy.
- Say: Now you are going to answer the next two questions. I am again putting on a timer for 1 minute and 30 seconds. To finish these questions you have to stay focused. I might call on you so be ready.
- When time goes off, review questions as a group. Use sticks to call on people.

CONTEXT CLUES

- Say: And Finally we will use context clues to answer 9-15. Who can be my voice and read the sentence number 9 is in?
 - Get a hand.
- Say: Who knows the answer?
 - Get a hand.
- Say: Alright solo you will finish 10-15! I know you can do it. You have a two minute timer to do it.
 - Review answers together by calling on people using sticks.

CLOSURE (3 mins)

- Say: How did people feel about doing that page together? Let's do a thumbometer. If you fully understand how to do the page we just did thumbs up. Thumb in the middle if you might need more practice. Thumbs down if you don't know what we're doing at all.
- Get three or four hands.

Spelling Packet Page 3:

Complete the Analogies

1. _____

2. _____

3. _____

4. _____

5. _____

Understand Idioms

6. _____

7. _____

8. _____

Use Context Clues

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____


Connections to READING

proud	boil	loud	house	join
cloud	sound	voice	oil	round
point	south	found	soil	ground

Complete the Analogies

Write a spelling word to complete each analogy.

1. Box is to **square** as **ball** is to _____.
2. East is to **west** as **north** is to _____.
3. Whisper is to **quiet** as **yell** is to _____.
4. Cold is to **freeze** as **hot** is to _____.
5. Find is to **found** as **grind** is to _____.



Understand Idioms

Write a word from the box to complete each idiom.

6. If you _____ forces with someone, you work together to do something.
7. If you sing at the top of your _____, you sing as loudly as you can.
8. If you and a friend like each other very much, then you get along like a _____ on fire.

Use Context Clues

Write spelling words to complete the paragraph.

Eleni was 9. to be the Science Fair winner. Her model showed how rainwater goes from a 10. in the sky, to the earth, and back again. She used arrows to 11. to the water soaking into some sandy 12.. She rubbed salad 13. on the grass to make it look wet. She even 14. a way to make the 15. of rain!