

CONCEPT MAP OF UNIT	TOPIC	Oobleck - Science
Stem Camp Unit	TEACHER	Ms. Emma
4 Consecutive Days	GRADE	Grades 3-5

KEY LEARNING(S)	UNIT ESSENTIAL QUESTIONS	OPTIONAL INSTRUCTIONAL TOOLS
Physical Properties	What Do Scientists Do?	PowerPoint
The Nature of Science	What kind of physical properties does Oobleck have?	Ipads
STANDARDS ADRESSED		ACCOMODATIONS: M&M's are optional.
2.2.1.1.1 describe objects in terms of color, size, shape, weight, texture, flexibility, strength, and types of materials in the object.		You can still have students pick out a color and share about themselves.
3.1.1.2.1 Generate questions that can be answered when scientific knowledge is combined with knowledge gained from one's own observations and investigations.		For making the Oobleck, depending on the abilities of your students teacher can add corn starch to a bag or small container. Students could also make a group product of oobleck instead of their own. Per request, for this lesson the students wanted to make their own to take with them.

KEY LEARNING(S)

4.2.1.2.1 Distinguish between solids, liquids, and gases in terms of shape and volume.

5.III.A.1 Participate in and follow agreed-upon rules for conversation and formal discussions in large and small groups.

UNIT ESSENTIAL QUESTIONS

OPTIONAL INSTRUCTIONAL TOOLS

Optional to have student journals. Does make it easier to see students ideas/ responses after each lesson. However, sticky notes are just fine.

Making Oobleck outside might be a little easier and less messy than being inside a classroom, and make sure students don't wash or put corn starch in the sink. It will clog the sink!

You can choose to read aloud the book that went along with this lesson *Bartholomew and the Oobleck* by Dr. Seuss. However, it is a very long book and the students didn't engage well from it.

DAY 1	DAY 2	DAY 3	DAY 4
Introduction to Physical Properties	Make Oobleck	Building Space Craft/Design	Test Object for Space Craft Design
LESSON ESSENTIAL QUESTIONS #1	LESSON ESSENTIAL QUESTIONS #2	LESSON ESSENTIAL QUESTIONS #3	LESSON ESSENTIAL QUESTIONS #4
Students will discuss examples of physical property and be able to expand their understanding by participating in a mystery bag game with a partner.	Students will be able to create their own Oobleck using their own color choice and follow the step-by-step process in how to successfully make Oobleck.	Students will work with a partner and design a rough draft in what type of space craft design will be able to sit on top of Oobleck. They will share ideas and ask questions.	Students will be able to design, build, and test out their space craft designs to see if it floats on top of Oobleck. Students will develop a theory of Oobleck.
CONTENT OBJECTIVES: 1. Students will develop an understanding of physical properties. 2. Students will identify physical properties of different “mystery bags”.	CONTENT OBJECTIVES: 1. Students will follow and listening to directions on how to make the Oobleck substance. 2. Students will discuss their observations and understandings of the	CONTENT OBJECTIVES: 1. After investigating the physical properties of Oobleck, students will build/design ideas for	CONTENT OBJECTIVES: 1. Students will identify objects to utilize with their designed objects. 2. Students will create designs of spacecrafts

physical properties of
Oobleck.

spacecrafts or a type of
ship.

and test out their
theories.

VOCABULARY #1

VOCABULARY #2

VOCABULARY #3

VOCABULARY #4

Scientists

Exploration

Physical Properties

Testing Theory

Investigate

Corn starch

Observation

Observation

Physical Property

Food coloring

Experiment

Advantage

H₂O

Design

Disadvantage

Greeting

Observation

Scientist

Teachers will pass out Stem

Solid

Greeting/Review

Camp shirts. Have students give

Liquid

Teacher Talk:

Greeting/Final Review

you a pancake on your head

when they find a spot to sit.

Welcome back Scientists, let's

Teacher Talk:

Teacher will then present google

slides to say welcome and

share a little bit out them.

Teacher Talk:

Greeting/Review

Teacher will ask the class about

what they remember about

learning the day before and

what type of examples they

review what are somethings we

have been learning about this

week in our Oobleck camp?

What were somethings that

went well or maybe didn't go

Welcome back! I hope you are

all excited to test out your

designs you built yesterday. We

have so many ideas you all

built! Let's talk a little bit about

what you all designed and why

Now many of you may know each other, but I have no idea who you guys are so I'm going to share a little bit about myself and then I want to get to know your names and some things you enjoy!

Teacher and students will then play the M&M and me game to learn about students and their name.

Teacher Talk: *I have a bag of original M&Ms. Each color correlates with a question to get to know you a little better. I will get out a couple M&Ms and be ready to share. If you want to*

shared to describe their mystery object.

Teacher will then go over classroom/behavior expectations and transition into having the students make their own Oobleck.

Teacher Talk:
I wanted to review our classroom behaviors again to make sure we are all on the same page. You have very little time here and I want to make sure no one's time gets wasted. Keep up the great work!

well when you explored the physical properties of Oobleck? Did anyone add too much water or corn starch?

Yes, it is very important to add a little bit of water to your corn starch, so it doesn't get filled with liquid! Today we will get right into our designing and building of your own spacecrafts or ship you will test out on Oobleck for tomorrows last day.

Teacher will walk through a PowerPoint of the things that are available to use and examples from previous students. Students should create a small design and the

you thought your items would best float on top of our Oobleck.

Task
Teacher Talk: *Which group would like to go first? Let's have you share with the class about your design. Does it have a name? What were some items you used and why do you think it'll float on the Oobleck?*

Students will get to put their designs in trial and see if it can sit on top of Oobleck. Each student or group will get to present their design and share what they used and why.

share something else that is just fine! **Task**

Once everyone has introduced themselves and shared the teacher will talk about behavior expectations.

Teacher will then ask if anyone knows what a physical property in science is. Create anchor chart before or with students about each property (size, color, smell, texture, etc.)

Task

Teacher will lead group into explaining the next task, Mystery Bags.

Teacher Talk:

Teacher will ask student what they think you need for ingredients to make Oobleck.

Oobleck ingredients

- *1 part water.*
- *1.5 to 2 parts cornstarch.*
- *Small amount of food coloring (optional)*
- *Storage to put Oobleck in (plastic bag & container.)*

Today I have filled up some plastic baggies with some corn starch in them. Your job is to put some water in and start making Oobleck. Now I would put food coloring into the water and then

goal is to have their project not sink in the Oobleck.

Task

Students will have most of the time to design a rough draft of their space craft object and be able to start building it with a partner or individually. The teacher will set out a bin or large bag filled with miscellaneous items (cardboard, cups, Q-tips, straws, colored paper, etc.).

Teacher will walk around and help support the students' ideas/needs. Students will write their names with a sticky note on their designs, and it will be saved in a safe spot in the

They can choose if they want to talk home their craft or toss it away.

Closing/Final Assessment

Teacher Talk: *You all did a great job! I enjoyed watching you explain your ideas and see if your designs you built floated on top of our Oobleck. Before you leave, I have a small sheet I would like you to fill out. On it put your name and answer the three questions.*

1. *Is Oobleck a solid, liquid or gas?*
2. *If you were to design another spacecraft or*

I will do a little example for what this will look like. You will get into small groups and have one paper bag. Don't let other groups see your object. Write down any physical objects you notice on a sticky note. For example, I have my bag and inside I feel that its kind of sticky and smooth. Its color is pink. It does not smell good. The size is small and isn't heavy. Does anyone have any ideas on what it might be?

Yes, you're correct it is an eraser!

Students will get into groups of two or a small group. Each pair

add some water slowly while mixing it inside the bag. Be careful to not add all the water at once. Also, please do not walk around with it on your hands and don't put corn starch down the sink or it will clog it up. If you need help, I can assist with whatever you need. Let's see who can make the best Oobleck recipe!

Closing

Students will gather back together to share what they noticed, any trial and errors they had, and something they enjoyed about making Oobleck.

classroom for the final test on the Oobleck on day four.

Closing

Teacher Talk:

Now that many of you have finished building your designs, we are going to put them in a safe spot for our last day tomorrow together where you will get to test out your ideas you had! Don't worry if you want to many additional touches, you can at the beginning of class!

Teacher will look at notes the students made to see if there are any specific items the students need for the next day.

design, what would you do differently?

3. *Did you have fun with the teacher and enjoy learning about Oobleck?*

Once you are done you may put your sheet by the smart board.

Thank you so much and I hope you had fun being a part of the Stem Camp Oobleck!

will get one paper bag with a mystery item. Their job is to look at the item and write down on a sticky note some physical properties about it and be ready to present it to the class and see if anyone can guess the mystery item.

Closing/ Pre-Assessment

Teacher will review what physical properties are and how we all gave examples of the things in the mystery bags without giving the item away. The students exit ticket will be a short pre-assessment to get an idea of what the students may or may not know about Oobleck.

Teacher Talk: Now I want you to think about what you want your spacecraft designs or ships to look like. You can work alone or with a small group. Talk with them with things you could use. It needs to be small, and I will bring in a bag of different items to help with building like (paper, glue, tape, cotton balls, cardboard, etc.) It would be best to write down your ideas on a sticky note and certain items you know you need or a rough draft of your design so I can help support your ideas!

MATERIALS NEEDED

- Sticky notes/ Note cards
- Writing utensils
- Variety of things for Mystery Bags
- M&M's (optional)
- Corn starch
- Food coloring
- Water
- Bag of miscellaneous items for building space craft
- Plastic baggies

MATERIALS NEEDED

- Tape/ Duct tape
- Brown paper bags
- Drawing paper
- Anchor charts
- *Bartholomew and the Oobleck* book by Dr. Seuss (optional)
- *Pre/ post- assessments*

Reflection/ Essential Question: “How does student engagement lead to increased student achievement and ownership of learning?”

Before taking this course, I would have said that I believe that in order to have student engagement you need to create positive relationships with your students first. By getting to know their interests, their likes, or dislikes. Things they like to do outside of school or maybe want to accomplish during the year. By creating these relationships and having a positive atmosphere, that is when your students will be more engaged and eager to learn.

Now I know and understand that when students are engaged, they will have a higher achievement and enjoy learning with being able to take ownership. However, with increased student achievement, students need to also learn how to productively struggle and not give up. What comes into play is then “The Power of Yet” and growth mindset that the teacher needs to explain, model, and support students when these things happen. Then the student engagement will lead to an increase of student achievement.

Lastly, when a student has all these layers built and structured into their learning it is then, that the student will take ownership of learning. The student will become more engaged, more confident, and able to ask for help when needed.

Engagement, achievement, and ownership are like the layers of a cake, but what’s in the middle of the layers also needs to be there in order to be ready for presentation and eating, like supporting students and their individual goals. When a student is engaged in the learning that is happening then they can achieve what is needed and be able to take ownership in their own learning. This is something all student should have to be lifelong learners.