**Great Q405: Saturday Science FS22**

**Lesson Plan Template**

**Grade level:1st and 2nd**

**Anchoring Question/Phenomena for the unit:** What are the different celestial objects located within our solar system?

**Lesson Plan #\_1\_\_**

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| **Desired Results** |
| **Driving Question for this week’s Saturday Session**● What is in our solar system? What is not a part of our solar system?  |
| **DCI Addressed in lesson:****Explain this idea (in your own words---not the internet) AND its importance to answering the driving question for the unit.**● ESS1.A Patterns of the motion of the sun moon and stars in the sky can be observed, described, and predicted.* The patterns of the solar system, whether correct, positions of the celestial objects, or incorrect will be shown throughout the lesson and their drawings.
 | **SEPS Addressed in Lesson:**● [Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)](http://www.nap.edu/openbook.php?record_id=13165&page=59)* These observations being made are from data being relayed from them in past experiences and they’re showing their observations through their drawings.
 | **CCCs Addressed in Lesson:**● Scientific Knowledge Assumes an Order and Consistency in Natural Systems* Our lessons relate to this standard by having our students understand the organization of the solar system including the sun, moon, Earth and other planets.
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| **Learning objectives (outcomes):*****What do you want students to be able to explain/state in response to the specific lesson question?***Students will be able to explain/state [USE KIDS’ WORDS]: ● Students will be able to identify different space objects such as the planets and the sun.-the name of the planets -where are each of these planets located in proximity to one another* Students will have an understanding of what is not in the solar system–as in everything else in the universe.
 |
| **Timeline of Activities for the Day** |
| \**Provide a breakdown of how long each activity will take, who will lead the segments of the activities, when breaks will occur or other transition points, etc.**\*Highlight in green the time period of the lesson your team wants video-recorded for the week. Should be ~30-40 mins total.* ● 10-15 Min: Introducing each other (both teachers and students-use an icebreaker-3 getting to know you questions)* 5-10 Min. introduction of the journal and what students will be doing for this activity
	+ Students will be writing down any prior knowledge that they have on the solar system
		- Example- the names of planets, physical features, their size, specifically the sun, moon etc
* 10-15 Min. of journal design
	+ Adding pictures and designs to your notebook to make it more personalized
	+ After discussion students can add onto their drawings based on what they learned
* 10-15 Min. talking about/starting to understand what students know about space- prior knowledge “What do you know about space?” “Have you heard of the solar system?” “What might you think is in the solar system?” “Do you think the Earth is in the solar system?” “What role do you think the sun plays in the solar system?” “Do you know what an eclipse is? Have you heard of this word?” “Does anyone know the names of the planets?”
* Transition outside
* 40-50 Min. outside for solar system chalk activity and discussion
	+ Have students explain specifically what they added, how they positioned the objects, and have the groups add on to each other's ideas.
* Come back inside
* 10-15 min wrap up and introduce next week ideas
 |
| **Learning Plan***Any of these phases can be repeated should you have more than one activity to describe for the day OR a complex activity with multiple iterations of some of these phases.* |
| **ENGAGE**● Have the students come outside with us to an already pre-made chalk drawn sun on the sidewalk. We can ask the students what the sun is, where it is, etc. Tie it to how it’s the center of the solar system. We then tell them to draw the rest of the solar system, after talking about what all the students think is in it. **EXPLORE**● The students will now start to create a model of the solar system using chalk on the sidewalk. They will apply what they do know, and, if they know nothing, we will use various guiding questions to help them begin their drawing. Example of guiding questions: “Well where do you think the Earth is?” “Do you have any idea where the planets are?” “Well where would the moon go on your drawing?” “How are the planets positioned around the sun?” **EXPLAIN**● The students will be explaining their drawings and telling us what space objects they included in their solar system. In order to further prompt their thinking we will ask questions such as “Why did you include this object in your solar system?” “How did you know that this object is a part of the solar system?” “What would happen if we didn’t have this object in the solar system?”  **ELABORATING/EXTENDING Understanding**● Students will not only be able to identify and draw the planets/ and what is in the solar system but we will start talking about what each planet in the solar system doesExample: what does the sun provide?  |
| **Formative Assessment Evidence (\*This is the Evaluation Phase of the 5E approach)** |
| **What evidence will you gather to understand if ALL your students met the learning outcome (see green box above)?*** We will be observing their chalk drawings and listening to them explain their drawings.
* Questioning during the lesson to help understand where students are in their own understanding of the solar system.
* Note if students are able to identify the 4 major celestial objects we are focusing on (sun, moon, Earth, planets). Along with other celestial objects they know of.
* Any special properties such as what they orbit, how long their days are, etc.
 |
| **Individual Student Accomodations** |
| **Accommodations/Modifications for Individual Students***[Explain what the need is and how your team will be incorporating the modification.]** Since we have 1st and 2nd graders we will be mixing the grades to work together. This way the 1st graders can work with the 2nd graders that may have more knowledge on the subject.
* We are going to lead them with guiding questions to help them create their drawings
 |

**Materials + Quantity: (REMEMBER ---These need to be emailed Tulli (tuariya@iu.edu) each Wednesday by 5:00pm)**

*(you can list here so you have it handy & then copy and paste to submit these separately in Canvas)*

* Chalk 4-5 containers
* 22 small non lined and plain cover notebook

[https://www.amazon.com/Kraft-Notebook-Journals-Students-Childrens/dp/B07D8MQ71H/ref=sr\_1\_13?keywords=blank+notebooks&qid=1664923646&qu=eyJxc2MiOiI1Ljk3IiwicXNhIjoiNS43OCIsInFzcCI6IjUuNDQifQ%3D%3D&sr=8-13](https://www.amazon.com/Kraft-Notebook-Journals-Students-Childrens/dp/B07D8MQ71H/ref%3Dsr_1_13?keywords=blank+notebooks&qid=1664923646&qu=eyJxc2MiOiI1Ljk3IiwicXNhIjoiNS43OCIsInFzcCI6IjUuNDQifQ%3D%3D&sr=8-13)

* Markers 4-5 packs

**Great Q405: Saturday Science FS22**

**Lesson Plan Template**

**Grade level: 1st and 2nd**

**Anchoring Question/Phenomena for the unit:** What are the different celestial objects located within our solar system?

**Lesson Plan #\_2\_\_**

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| **Desired Results** |
| **Driving Question for this week’s Saturday Session**-What are the characteristics of terrestrial planets?-What are they made of?-How big are they?  |
| **DCI Addressed in lesson:****Explain this idea (in your own words---not the internet) AND its importance to answering the driving question for the unit.*** ESS1.A Patterns of the motion of the sun moon and stars in the sky can be observed, described, and predicted.
 | **SEPS Addressed in Lesson:**● [Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)](http://www.nap.edu/openbook.php?record_id=13165&page=59) | **CCCs Addressed in Lesson:**● Scientific Knowledge Assumes an Order and Consistency in Natural Systems |
| **Learning objectives (outcomes):*****What do you want students to be able to explain/state in response to the specific lesson question?**** Students will gain an understanding of the characteristics of the terrestrial planets.
* Students will be able to identify the terrestrial planets.
* Students will learn similarities and differences among the terrestrial planets.
 |
| **Timeline of Activities for the Day** |
| \**Provide a breakdown of how long each activity will take, who will lead the segments of the activities, when breaks will occur or other transition points, etc.**\*Highlight in green the time period of the lesson your team wants video-recorded for the week. Should be ~30-40 mins total.** 5 minutes to fold a piece of paper, write their names on the construction paper and place in front of them at their table
* 10-15 minutes- review on last weeks content
	+ What are the names of all 8 planets? Do planets revolve around the sun or does the sun revolve around the planets? What do we call the pathway that the planets take?
* 5 minutes of the Brain pop jr video
* 5-10 minute- think,pair, share (what we learned in the brain pop jr video)

First break- 5 minute bathroom break* 10-15 minutes- introduce plaster planet project, assign groups and handout materials
	+ Make 4 groups- each group will be assigned one of the inner planets
* 30 minutes- make base of planets
	+ Two part of plaster powder
	+ One part water
	+ Mix and stir in a cup
	+ Then pour onto styrofoam plate
	+ Take spoon and have students curve out craters and rivers of water
	+ Let mold dry
* 5 min-handout brain-booster article
* 20 min-jigsaw about articles
	+ (What did you learn from these articles? What similarities are there between the planets? What was different about yours from the others?)
* 5 min- group discussion

Second break- 5 minute bathroom break* 20 min- paint mold
* 10 min- wrap up lesson and introduce next week
	+ State the next 4 outer planets
 |
| **Learning Plan***Any of these phases can be repeated should you have more than one activity to describe for the day OR a complex activity with multiple iterations of some of these phases.* |
| **ENGAGE**● Have the students watch a brainpop video after we review what we talked about last week.  **EXPLORE*** Each table of students get assigned a planet that they are going to design
* 4 groups
* Articles for each planet will be handed out and a jigsaw discussion will happen based on articles
* Create their assigned inner planet using the plaster mold to create the necessary craters, rivers, mountains, etc. that their planet may have.

**EXPLAIN**● Students are sharing what they learned from the articles about the four inner planets.* Students explain their models to each other.

 **ELABORATING/EXTENDING Understanding**● Students will participate in a jigsaw discussion where they need to explain their models and listen to their peers explain their models to understand their similarities. |
| **Formative Assessment Evidence (\*This is the Evaluation Phase of the 5E approach)** |
| **What evidence will you gather to understand if ALL your students met the learning outcome (see green box above)?*** Students will be able to have group discussion on content that they learned from our lesson, reading/article, activity and brain pop jr video
* Students will engage with activities and conversation by answering questions and participating
 |
| **Individual Student Accomodations** |
| **Accommodations/Modifications for Individual Students***[Explain what the need is and how your team will be incorporating the modification.]*Majority of our lesson is around group discussions and group work; we will make sure that we make groups based on students strengthsHave a teacher or volunteer available to help read articles to children who struggle reading. |
| * Based on students prior knowledge, reading skills etc
 |

**Materials + Quantity: (REMEMBER ---These need to be emailed Tulli (tuariya@iu.edu) each Wednesday by 5:00pm)**

*(you can list here so you have it handy & then copy and paste to submit these separately in Canvas)*

* <https://www.youtube.com/watch?v=U2CHRPpghyI>
	+ Link for Brain pop jr video
* plastic spoons- at least 40
* Plates- pack of 100
* red solo cups- pack 50
* paint - green, blue, brown, red, orange, yellow (jugs)
* Paint brushes- 30
* markers/ construction paper
* Scholarly articles
	+ <https://docs.google.com/document/d/1syxZBhu1kFza48LA-CYtSvYnN1LnhK8Y1WeDd9RQKNs/edit?usp=sharing>

**Great Q405: Saturday Science FS22**

**Lesson Plan 3**

**Grade level:1st and 2nd**

**Anchoring Question/Phenomena for the unit:** What are the different celestial objects located within our solar system?

**Lesson Plan #\_3\_\_**

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| **Desired Results** |
| **Driving Question for this week’s Saturday Session**●What are the properties of the gas planets?   |
| **DCI Addressed in lesson:****Explain this idea (in your own words---not the internet) AND its importance to answering the driving question for the unit.**● ESS1.A Patterns of the motion of the sun moon and stars in the sky can be observed, described, and predicted.* The patterns of the solar system, whether correct, positions of the celestial objects, or incorrect will be shown throughout the lesson and their drawings.
 | **SEPS Addressed in Lesson:**● [Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)](http://www.nap.edu/openbook.php?record_id=13165&page=59)* These observations being made are from data being relayed from them in past experiences and they’re showing their observations through their drawings.
 | **CCCs Addressed in Lesson:**● Scientific Knowledge Assumes an Order and Consistency in Natural Systems* Our lessons relate to this standard by having our students understand the organization of the solar system including the sun, moon, Earth and other planets.
 |
| **Learning objectives (outcomes):*****What do you want students to be able to explain/state in response to the specific lesson question?***Students will be able to explain/state [USE KIDS’ WORDS]: ● Students will be able to identify different gas planets and their characteristics.* Students will be able to explain why gas planets are different from the inner planets.
 |
| **Timeline of Activities for the Day** |
| \**Provide a breakdown of how long each activity will take, who will lead the segments of the activities, when breaks will occur or other transition points, etc.**\*Highlight in green the time period of the lesson your team wants video-recorded for the week. Should be ~30-40 mins total.** 9:30-9:35 (5 minutes)- Students come in and make name tag.
* 9:35-9:45 (10 minutes)- we talk about what we’ve learned so far. Review terrestrial planets and have students share what they made with both chalk and the mold.
* 9:45-9:50 (5 minutes)- watch gas planets video introducing gas planets to children. <https://www.youtube.com/watch?v=SeC22-94PMw>
* 9:50-10:10 (20 minutes)- draw pictures of their own gas planets. I will begin by modeling and creating my own gas planets. I’ll make the lines, a storm, and the rings. Then the students will use markers and papers to create their own gas plane.
* 10:10-10:50(40 minutes)- the main activity of creating a gas planet using balloons and paint. We will have stations where they will pick out the qualities they want for their planet.
	+ Station 1- choose color (paint) of gas planet
	+ Station 2- choose rings (construction paper) that will be taped to the gas planet
	+ Station 3- choose the size (how blown up your balloon is) of how big you want your planet to be.
* 10:50-11:00 (10 minutes)- As students finish their planets, we will have pre picked student models to share with the class that show off a storm, the rings, and a great paint job that shows off the layered look of the gas giants.
* 11:00-11:10 (10 minutes)- Have students walk around the room to look at each other’s planets. Students will share with each other which one was their favorite.
* 11:10-11:20 (10 minutes)- navigate to next week by talking about the sun and how it is similar but very different to gas planets. (similar in make-up, different through size and energy given off by sun)
 |
| **Learning Plan***Any of these phases can be repeated should you have more than one activity to describe for the day OR a complex activity with multiple iterations of some of these phases.* |
| **ENGAGE**● Have students look at the gas planets as the next step in the solar system. They’ll be engaged because we will tell them they’ll be making their own gas planet modeled after the qualities described by the video being shown. **EXPLORE**●Students will be exploring their planets and what they can do to their models, in both the drawing and creating balloon models. They will be looking at rings, massive storms, and coloration of certain planets to help them create. **EXPLAIN**● Student’s will be explaining their models to the class and showing them off to each other. We will then extend understanding as teachers by pointing out qualities shown by the student’s models and saying how they are like the outer planets in our own solar system. **ELABORATING/EXTENDING Understanding**● Students will be extending their understanding by looking at other student’s models to help create their own understanding of what a gas planet could be and even what it could not be (rocky like Earth). |
| **Formative Assessment Evidence (\*This is the Evaluation Phase of the 5E approach)** |
| **What evidence will you gather to understand if ALL your students met the learning outcome (see green box above)?*** We will look at the different models created. If they contain certain characteristics of the gas planets and they can explain that they are much bigger than terrestrial planets and are made of gasses through discussion prompting, then they will have learned the learning goals.
 |
| **Individual Student Accomodations** |
| **Accommodations/Modifications for Individual Students***[Explain what the need is and how your team will be incorporating the modification.]** Make sure students are given enough time
* Give extra help to students that need it
 |

**Great Q405: Saturday Science FS22**

**Lesson Plan 4**

**Grade level:1st and 2nd**

**Anchoring Question/Phenomena for the unit:** What are the different celestial objects located within our solar system?

**Lesson Plan #\_4\_**

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| **Desired Results** |
| **Driving Question for this week’s Saturday Session**● What is the sun and what does it do for the solar system?   |
| **DCI Addressed in lesson:****Explain this idea (in your own words---not the internet) AND its importance to answering the driving question for the unit.**● ESS1.A Patterns of the motion of the sun moon and stars in the sky can be observed, described, and predicted.* The patterns of the solar system, whether correct, positions of the celestial objects, or incorrect will be shown throughout the lesson and their drawings.
 | **SEPS Addressed in Lesson:**● [Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)](http://www.nap.edu/openbook.php?record_id=13165&page=59)* These observations being made are from data being relayed from them in past experiences and they’re showing their observations through their drawings.
 | **CCCs Addressed in Lesson:**● Scientific Knowledge Assumes an Order and Consistency in Natural Systems* Our lessons relate to this standard by having our students understand the organization of the solar system including the sun, moon, Earth and other planets.
 |
| **Learning objectives (outcomes):*****What do you want students to be able to explain/state in response to the specific lesson question?***Students will be able to explain/state [USE KIDS’ WORDS]: **Students will understand the role the sun plays in our solar system****Students will understand that the sun gives off energy**  |
| **Timeline of Activities for the Day** |
| \**Provide a breakdown of how long each activity will take, who will lead the segments of the activities, when breaks will occur or other transition points, etc.**\*Highlight in green the time period of the lesson your team wants video-recorded for the week. Should be ~30-40 mins total.** 9:30-9:35 (5 minutes)- Students come in and make name tags.
* 9:35-9:45 (10 minutes)- we talk about what we’ve learned so far. Review inner and outer planets and how they orbit around the sun.
* 9:45-9:50 (6 minutes)- watch a sun video introducing concepts about the sun to children.
* 9:50-10:00 (10 minutes)- ask a prompting question “what would happen if we didn’t have the sun?” Let students discuss and give us their ideas. Have students elaborate on why they think what they do.
* 10:00-10:05 (5 minutes)- talk about the main activity. Show an example of a completed example of their project.
* 10:05-10:15- Bathroom break
* 10:15-10:20- head outside with the class
* 10:20-11:00- complete the sun paper activity outside
* 11:00-11:05-head back to the classroom
* 11:05-11:20- discussion on the outcome of the activity (sun's energy and how it affected the paper)
* 11:20-11:30- introduce next week's lesson on the moon and eclipse
 |
| **Learning Plan***Any of these phases can be repeated should you have more than one activity to describe for the day OR a complex activity with multiple iterations of some of these phases.* |
| **ENGAGE**● [http](https://www.youtube.com/watch?v=vQSECrMIygg)[s://www.youtube.com/watch?v=vQSECrMIygg](https://www.youtube.com/watch?v=vQSECrMIygg)Show this video to the class- engage their thinking on what the sun does for our solar system* Introduce our activity

**EXPLORE**● Complete the activity outside Aid discussion/collaboration throughout the activity and time outside **EXPLAIN**● Discuss the outcome of the activity and why the outcome was the way it was -how does the sun's heat give off energy and create a design on the paper**ELABORATING/EXTENDING Understanding**● have group discussion on why we think the sun had an affect on the paperHow can we apply this to how the sun has an affect on our solar system and specifically how does the sun contribute to life on Earth |
| **Formative Assessment Evidence (\*This is the Evaluation Phase of the 5E approach)** |
| **What evidence will you gather to understand if ALL your students met the learning outcome (see green box above)?*** Students will be able to discuss their knowledge on the sun, its role in the solar system and its properties
* Students will engage with the activity and discuss their results in comparison to the energy that the sun gives off/provides
 |
| **Individual Student Accommodations** |
| **Accommodations/Modifications for Individual Students***[Explain what the need is and how your team will be incorporating the modification.]** Make sure students have time to complete/understand the activity
* Make sure student questions are addressed critically
 |

### **What You'll Need:**

* Flat objects like keys, leaves, and flowers
* Safe scissors
* Stiff cardboard
* Flat pan, glass baking dish or sheet of clear acrylic
* Light-sensitive paper (such as Sunprint brand paper)

First, assemble the materials you want to make prints from. Grass, leaves, and flowers make good prints. You can also look around the house for small objects such as keys, paper clips, and shaped erasers.

Cut a sheet of stiff cardboard a little larger than the printing paper. In a dim place, lay your objects on the cardboard and decide how to arrange them. Then set the objects aside and make a print.

Pour water in a flat pan and have it ready to develop your prints. Open the package of light-sensitive paper and remove one sheet. Lay the sheet on the cardboard, then arrange your objects on the paper. Set the glass baking dish or clear acrylic on the paper. Lift the whole stack and set in the bright sun for three to five minutes.

Remove the paper and soak in the water for about one minute. Set your print in a dry, shady place to dry. You will see white shadows on a blue background.

Frame your finished prints and decorate your bedroom wall with them, or use them to make cards, bookmarks, party invitations, or anything you think of.

For another fun art project to make using sunlight, try the Sun Portraits on the next page.

<https://embed.kahoot.it/3ae0a979-6a88-441b-80fb-b0126afadd2b>

**Great Q405: Saturday Science FS22**

**Lesson Plan 5**

**Grade level:1st and 2nd**

**Anchoring Question/Phenomena for the unit:** What are the different celestial objects located within our solar system?

**Lesson Plan #5**

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| **Desired Results** |
| **Driving Question for this week’s Saturday Session*** What are the phases of the moon?
* What do you know about an eclipse?
* How is the moon responsible for the eclipse happening in 2024?

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| **DCI Addressed in lesson:****Explain this idea (in your own words---not the internet) AND its importance to answering the driving question for the unit.**● ESS1.A Patterns of the motion of the sun moon and stars in the sky can be observed, described, and predicted.* The patterns of the solar system, whether correct, positions of the celestial objects, or incorrect will be shown throughout the lesson and their drawings.
 | **SEPS Addressed in Lesson:**● [Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)](http://www.nap.edu/openbook.php?record_id=13165&page=59)* These observations being made are from data being relayed from them in past experiences and they’re showing their observations through their drawings.
 | **CCCs Addressed in Lesson:** ● Scientific Knowledge Assumes an Order and Consistency in Natural Systems* Our lessons relate to this standard by having our students understand the organization of the solar system including the sun, moon, Earth and other planets.
 |
| **Learning objectives (outcomes):*****What do you want students to be able to explain/state in response to the specific lesson question?***Students will be able to explain/state [USE KIDS’ WORDS]:Students will be able to explain the different phases of the moon?Students will be able to explain what an eclipse is and how it occurs? |
| **Timeline of Activities for the Day** |
| \**Provide a breakdown of how long each activity will take, who will lead the segments of the activities, when breaks will occur or other transition points, etc.**\*Highlight in green the time period of the lesson your team wants video-recorded for the week. Should be ~30-40 mins total.** 9:30-9:35 - Name tags
* 9:35-9:45 - Talk about what we’ve done so far, then try to recreate the solar system on the board. Let the kids take the marker to the board. Let each kid draw one piece then pass on the marker.
* 9:45-10:00 - Show the moon phases video
* 10:00-10:10 - Talk about the moon. What they know and what they want to know, particularly about the moon phases, should be explored.
* 10:10-10:50 - (Main activity) model how to make the phases with and without shaving cream.. Have each student use shaving cream to create the moon phases.
* 10:50-11:10 - (Tie everything together) have the students design a picture using all the parts of the solar system we learned about
* 11:10-11:20- (Tie everything together) video <https://www.youtube.com/watch?v=iWNuW0_ycxc>
* 11:20-11:30- discussion on the eclipse
 |
| **Learning Plan***Any of these phases can be repeated should you have more than one activity to describe for the day OR a complex activity with multiple iterations of some of these phases.* |
| **ENGAGE**[**https://www.youtube.com/watch?v=Ie2WRraxdPs**](https://www.youtube.com/watch?v=Ie2WRraxdPs)Show this video to the class- engage their thinking on what the moon does in our solar system and the moon phases* Introduce our activity

**EXPLORE*** Complete the moon phases activity
* Aid discussion/collaboration throughout the activity

**EXPLAIN*** Discuss the outcome of the activity and why the outcome was the way it was
* -what are the phases of the moon and how they have an impact on the solar system.

**ELABORATING/EXTENDING Understanding*** have group discussion on moon phases
* How can we apply this to how the moon has an affect on our solar system and specifically how does the moon have an effect on Earth
 |
| **Formative Assessment Evidence (\*This is the Evaluation Phase of the 5E approach)** |
| **What evidence will you gather to understand if ALL your students met the learning outcome (see green box above)?*** Students will have discussions with their peers and the class about the different eclipses
* Students will demonstrate their knowledge on the moon phases by their ability to complete the “eclipse moon phase” activity
 |
| **Individual Student Accommodations** |
| **Accommodations/Modifications for Individual Students***[Explain what the need is and how your team will be incorporating the modification.]** Make sure students have time to complete/understand the activity
* Make sure student questions are addressed critically
 |

Popsicle sticks- pack

Shaving cream- 4

Black paper- 30 sheets

Paper plates-30

Construction paper- mixed colors

markers/colored pencils