

~~Kristina~~  
Student #1

## 518 Unit Plan Checklist

Mckamey, Fall 2010

Section	Criteria	Points
1. Title Page	<ul style="list-style-type: none"> <li>Is the title clear, and does it capture attention?</li> <li>Is there a visual aid (e.g. photo, drawing, other visual) that represents the unit? <i>nice intro!</i></li> </ul>	5 5
2. Table of Contents	<ul style="list-style-type: none"> <li>Complete</li> <li>Clear</li> </ul>	5 5
3. Note to reader (context essay)	<ul style="list-style-type: none"> <li>Unit briefly summarized</li> <li>3 Features of the school/classroom context described, with examples</li> <li>Author makes a connection between contextual features and their unit plan design and teaching. In other words, why is this unit plan particularly appropriate for this context/these students?</li> </ul>	10 <u>10</u>
4. Unit Plan	<ul style="list-style-type: none"> <li>Unit Plan</li> <li>Scope and Sequence (Lesson topic, activity, goals, types of assessments planned. (1-2 lines per lesson)</li> </ul>	20 20
5. Assessment plan	<ul style="list-style-type: none"> <li>Description of key assessments and relationship to unit plan goals, science domains, and blooms taxonomy. Example of what this might look like: You can place key assessments within the assessment graphic organizer with a short paragraph description.</li> <li>Final assessment and rationale for assessment</li> </ul>	15 10
6. Selected lesson plans and supporting materials	<ul style="list-style-type: none"> <li>Lesson plans (4) and supporting materials are included</li> <li>Lesson plans include goals, standards, assessments, activity plan, other items discussed in class/on template.</li> <li>Assessment and activity are aligned with lesson plan goals</li> <li>Lesson plans are informed by Grasps (e.g. real world connections, provide students with a role, provide context).</li> <li>At least one lesson is a 5E lesson cycle</li> <li>Field Trip Plan included</li> <li>Resource List Included</li> </ul>	20 20
7. Reflection	<p>Option 1:</p> <ul style="list-style-type: none"> <li>What did you learn about yourself/curriculum design in doing this project?</li> <li>Provide a case study/example of how you encountered an obstacle or changed your thinking about some design aspect.</li> </ul> <p>Option 2:</p> <ul style="list-style-type: none"> <li>What worked in this lesson/unit? What didn't work?</li> <li>What changes would you make to the lesson/unit and why?</li> </ul> <p>Option 3:</p> <ul style="list-style-type: none"> <li>Why is this unit/topic important to teach to students?</li> <li>Consider not just GLE's, but also consider larger philosophical and/or beliefs you have as a teacher about education, science, schooling, diversity/globalization, and children.</li> </ul>	10 9

(3/3)

**In class participation:**

- Ongoing feedback to each other: 5 5
- Ongoing "tweaking" based on feedback: 10 10

~~Kristina~~ - very nice and well put together unit! 94



Lesson Scope + Sequence  
was well planned  
and aligned with  
standards/appropriate  
outcomes.

Lesson Scope + Sequence  
was well planned  
and aligned with  
standards/appropriate  
outcomes.

Activities were  
inquiry based and  
connected with  
outcomes (and  
often very creative!)

Assessments seemed appropriate  
yet, the assessments  
could have been  
better defined -  
in particular  
the criteria and  
expectations for  
what makes  
a good paper/  
product / assessment  
could have  
been more  
defined (eg:  
rubrics tweaked to  
address specific  
learning objectives).

Reflection had a lot of  
heart + spirit - you will be  
inspired to your students!

**ELED 518 RIPTS 9 ARTIFACT  
McKamey, Fall 2010**

Name: *Wendy E. ...*

	Part 1	Part 2	Part 3	Part 4	Writing & Voice
<b>INDICATORS</b>	Context – Context Paper	Design – Assessment Plan	Lesson Plan Alignment with Selected Unit Outcomes	Self Evaluation and Implications for Future Teaching	Writing Conventions & Voice
<b>ORIGINAL</b>		<i>3</i>	<i>3</i>	<i>2.5</i>	<i>2.5</i>
<b>RE-SUBMISSION</b>	<i>3</i>				

NOTE: An overall Acceptable or Exemplary rating of the artifact is required for the Preparing to Teach portfolio. Students are required to earn a minimum score of 2.00 for each indicator to earn an Acceptable or Exemplary. If any indicator is less than 2.00, students can re-submit one time to improve the sub 2.00 indicator(s) to a 2.00 and earn an Acceptable rating.

**ORIGINAL SUBMISSION**

The overall rating of this portfolio entry is:

Exemplary (3)    
  Acceptable (2)    
  Unacceptable. (1)

---

ELED Professor Signature (Name & Date), 1<sup>st</sup> Submission

**RE-SUBMISSION**

The overall rating of this artifact is:

Exemplary (3)    
  Acceptable (2)    
  Unacceptable. (1)

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ELED Professor Signature (Name & Date), 2<sup>nd</sup> Submission

# Lost in Space

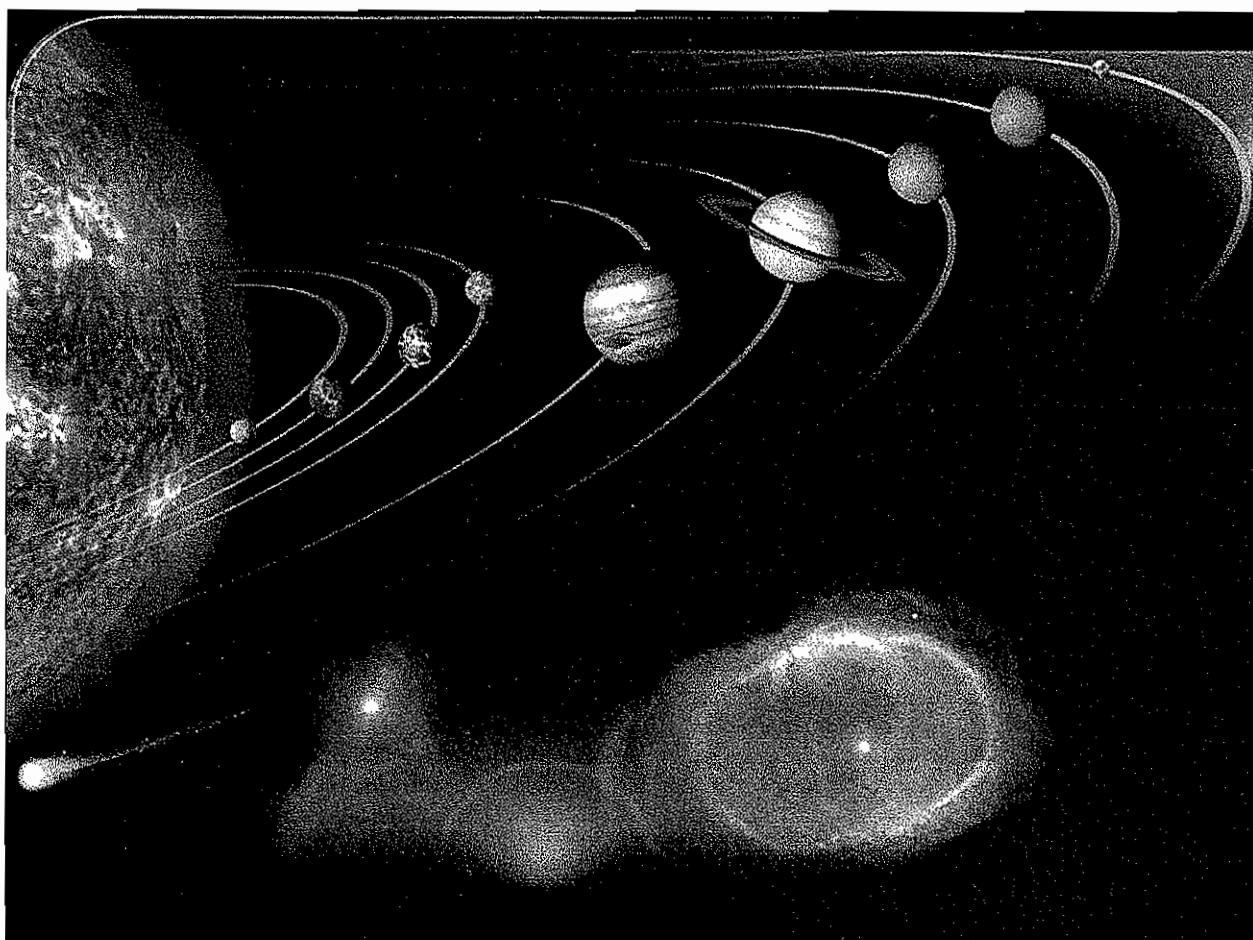
~~Kingsport~~

ELED 518-01

Science in the Elementary School

Dr. Corinne McKamey

Solar System Unit Plan



## Solar System Unit Description

A long time ago in a galaxy far, far away...

# THE SOLAR SYSTEM

Space... The final frontier...These are the voyages of the Starship Mr. Coult. It's continuing mission: To explore strange new worlds...To seek out new life and new civilizations...To boldly go where no class has gone before!

## Context Essay

The Marieville Elementary School is a multi-story brick building located on Mineral Spring Avenue near the intersection with Route 146. The school was built in 1920. This is a public school in the North Providence District. The school houses grades K-5. It has 228 students and 25 teachers. The school has highly qualified teachers. Of the students at Marieville School seven percent are Black, 12 percent are Hispanic, and 80 percent are White. Marieville School is an old building that conspicuously needs repair and renovation; however, it shelters a warm, learning environment.

The district median family income is \$51,655.00. 51% of the students receive subsidized lunches. Due to the fairly low income of many families in the school, it has been my experience in working with these children that they do not have all the resources of other students in more affluent communities. These schools are not as equipped as those in more affluent communities. This means I may not have access to the latest technology. I will have to differentiate my instruction to the limitations of my resources. I may not have access to computers and thus will not be able to have the children explore the NASA website where there were many solar system games and interactive material. I may not have access to the newest books that explore the forever changing universe. The children will not have access to the latest information if they don't have the books in the library. I might be limited in the amount of arts and crafts materials I will be able to use which may inhibit the models of the planets I want the children to make. With this in mind, I may have to spend more money out of pocket than I want to but I want the children to learn in a creative way. As a teacher, I want to make sure my students have the exposure to as much creative material as possible.

Yes -  
nice  
speculation  
here

The topic of socio-economic status as a whole is a concern for any teacher teaching in a less than affluent community. Parents may not be around as much to help out the students at home. They may have multiple jobs just to put food on the table. The student's school work could be affected as a result of parent involvement. I would like to have the children bring home activities such as games, mini projects, and worksheets that need to be completed with their family members. I believe that there are so many positives that come out of having the family involved with the student, so I am going to do what I can as a teacher to have positive relationships with the families. The involvement of the families will be crucial for learning and student achievement. Communication is the best way in having a successful parent-teacher relationship. I need to make a good first impression. I will be trying to keep a constant line of communication available through school email, parent-teacher communication folders, and establishing an inviting classroom environment with the families. At the present time, I am willing to have parents come into the classroom as volunteers. I am just nervous how this interaction will play out. I would hope that some parents would want to be chaperones on our field trip to The Museum of Natural History and Cormack Planetarium in Providence and The Museum of Science in Boston. I would hope we have the resources to make these trips happen. It may be necessary to have fundraisers or find other creative ways to get people to donate money for a good cause. As the teacher, I may need to research grants of school field trips. I want to be actively involved in making the school a better place to learn with the help of the whole school community. I will reach out to community agencies when needed to enhance the relationship between the community and the school.

✓ yes

how to not penalize students with limited access to family members?

✓  
in making  
ought  
request  
address  
S  
tors.

✓  
YES.  
public libraries often have vouchers as do some parent groups for museums - museums and other organizations may also have scholarship

Teachers need to create instructional opportunities to encourage all students' development of critical thinking, problem solving, performance skills, and literacy across content

areas. Teachers need to find creative ways for children to discover the answers to questions. I will use divergent questioning in order to stimulate the thinking of the children. In this method, I will pose questions that will encourage the students to view, analyze, and interpret ideas from multiple perspectives. I believe that this is the best way to get children to think about what they are learning. I will be asking questions such as, "What is the solar system?", "Have you ever wondered about other planets or life from outer space?", "What if there is life out there, would it change the way you looked up at the night sky?", "How have the planets changed over time?", "Do you ever wonder about travel to the other planets?", "What do you think it would be like to be on Mercury, the closest planet to the sun?", "What do you think it would be like to be on Venus, the planet with a thick Carbon Dioxide atmosphere?", "What do you think it would be like to be on Earth, if you were an alien from a different solar system?", and "What do you think it would be like to be on Mars, the planet with a cold, thin Carbon Dioxide atmosphere?"

If I use cooperative learning structures, I would hope that children will collectively think about the problems I have set forth. I will engage the students in projects that test their hypotheses, especially with hands on projects. The use of cooperative learning projects in which students work together to attain success will help foster mutual respect and intellectual risk taking. I will be introducing the book "The Magic School Bus, Lost in the Solar System". I will have them look at the front of the book and the 5 objects (picture of the sun, the space suit, picture of asteroid belt, picture of planet earth, and picture of the school bus) and using the Cooperative Learning Structure: Think-Pair-Share, I will have them think about what they think the book is about just by looking at the cover of the book and the objects presented and share with partner and then with the class. In Think-Pair-Share, a problem is posed; students think alone about the questions for a specified amount of time, and then form pairs to discuss the

how  
might  
you  
scaffold  
this?  
ok!  
1st  
specify  
strategy



question with someone in the class. During share time, students are called upon to share the answer with the class as a whole. I will then read the book to the class. The students will keep in mind the objects that were presented. This is done to spark interest in the book and keep them focused on the story. After the reading, we will discuss the book and see how close the story was to what they thought before we read it. I will also use the Cooperative Learning Structure: Line Up. I will have the children line up in the order of the planets. I will announce the task the students must accomplish. I will announce that they must line up in order of the planets starting with the sun. The students will position themselves in a single file line per teacher instruction. This can be whole group or small groups. I will then give the specific task to the students. I will give each group a set of index cards with the names of the planets on them. I will give them index cards with the names of the inner planets. The students will work together to accomplish the task and realign themselves accordingly. I will ask a group member to describe the solution to the class. I will then have the next group line up and give them index cards with the names of the outer planets. I will have the other groups look at the line ups and assess correctness. I will then have another group line up and give them index cards with the names of all the planets (Mercury, Venus, Earth, Mars, Ceres, Jupiter, Saturn, Uranus, Neptune, Pluto and Eris). We will discuss the line up as a class. Furthermore, the use of cooperative learning structures and group discussions will give the students an opportunity to respond to others questions and ideas.

2<sup>nd</sup>  
Specific  
Strategy -  
Good  
idea!

The teachers at this school appear to be using a lot of cooperative learning structures in their teachings. I want to explore as many different cooperative learning structures to promote a positive learning environment. Students will learn more if they are having a positive experience. This is something that I am very excited about. I have had some experience with this and it appears that students seem to look forward to this. In science, I am learning that exploration is a

key to advance learning. This is a great way for them to explore with each other. I believe that students can learn from one another and if given the opportunity, will enhance their own learning by this type of structure. Grouping students will be a challenge as it has been my experience that many students only pair up with the students that they know. I will need to keep track of who has and has not worked with each other.

Marieville School lacks consistency in aspects of its programs. While teachers share common planning time within their grade levels, they lack the opportunity for vertical articulation. The physical organization of the school is not conducive to communication and collaboration. There are inconsistencies in instructional practices and programs, as well as in the use of standards and rubrics, and even in the scheduling of recess, which further limit the coordination of effort toward a school vision and common goal. I will need to get to know the students to create connections between subject matter and student experiences. I will need to work with the family and other faculty to find out information on the student that could impact their learning. I will need to work with specialists to meet the needs of certain students and make modifications to the classroom for those students who have identified learning differences or an Individualized Educational Plan. I will need to work on my openness to ask for help from my colleagues. The feedback I receive from colleagues will help me become a more effective teacher. I think it will be important to observe experienced teachers on my free time so I can enhance my personal growth as a teacher.

}  
yes

good general strategies towards addressing program here

at Marieville and also in other schools.

3/3  
terrific content paper!  
you have addressed  
3 key contented areas specific to your school and have provided strategies/orientations that will strengthen your pedagogy + practice.

Name of RIC student: Kristian Coutu  
 Name of Clinical Instructor: Dr. Corinne McKamey

Unit Topic: The Solar System - upper elementary, right? (5th)?

*Learning goals: What will students know and be able to do at the end of the lesson? Need to include science domains: science knowledge, science process skills, laboratory – procedural knowledge, and scientific attitudes*

**Students will know (use everyday language)**      **Students will be able to do (use everyday language)**

The Earth and earth materials as we know them today have developed over long periods of time, through continual change processes

The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships

The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time

Correctly name the planets in our solar system

Correctly order the planets in our solar system

Give definitions of planet, galaxy, universe, revolution, rotation, and orbit

Demonstrate size, location, and distance using their models

Compare the composition, atmosphere, and surface features of objects in our solar system

The students will be able to identify all of the planets from either a planetary wide photograph or a description of that planet

The students will be able to list the features unique to each planet

The students will be able to demonstrate that they know each of the planets atmospheric properties through an examination

The students will be able to list the ways in which the Earth is different from the other planets found within the inner solar system

The students will be able to label the planets on a solar system chart.

**Standards/GLE's addressed**

ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships

ESS2 (3-4)-8 Students demonstrate an understanding of characteristics of the solar

system by...

8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth

ESS2 (5-8) MAS-6

Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

ESS2 (5-6)-6 Students demonstrate an understanding of characteristics of the solar system by...

6a Identifying and comparing the size location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.

6b Comparing the composition, atmosphere, and surface features of objects in our solar system.

**Unit Pre Assessment\*:**

I will tell the children that they'll be studying the Solar System and that I am interested in learning about what they already know. I will hear from volunteers and accept their thoughts without judgment or correction. I may want to ask the children to clarify their ideas, but will not push too hard. This is not a time to teach but, rather, to collect information about the range of understanding and experience in the class. After the class discussion I will ask the students to write in their science journals everything they know about the Solar System and to include ideas you think may be right but you aren't sure about and also things others have told you about the Solar System. I will prompt them by asking opened ended questions such as, "What is the solar system?", "Have you ever wondered about other planets or life from outer space?", "What if there is life out there, would it change the way you looked up at the night sky?", "How have the planets changed over time?", and "Do you ever wonder about travel to the other planets?"

make a worksheet w/ these prompts

**Final Performance Assessment:** (e.g. create a product or demonstrate something. Often a rubric is used to evaluate.) 1) SHOULD ALIGN WITH UNIT GOALS and GLE's 2) SHOULD BE BASED ON GRASPS

### PLANET VACATION

A planet vacation would certainly be interesting. You could end up frozen solid, burnt to a crisp, or squashed flatter than a pancake by gravity.

Where would you go?

You are tour guide promoters and you are trying to convince people to visit and stay on your planet. Your task is to design a vacation brochure that is fun and exciting in order to catch the eye of the visiting astronauts. Inside the brochure, you will need to include information on why they would want to vacation here, what they would do while they are there, and any items they would need to bring with them to make their visit more

pleasurable. Be creative! The sky's the limit, or should I say the Universe's the limit!

**Other major assessments\*: SHOULD ALIGN WITH UNIT GOALS and GLE's**

### **Assessments of selected lessons**

#### **Teacher observation (throughout unit)**

ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships

ESS2 (3-4)-8 Students demonstrate an understanding of characteristics of the solar system by...

8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth

ESS2 (5-8) MAS-6

Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

ESS2 (5-6)-6 Students demonstrate an understanding of characteristics of the solar system by...

6a Identifying and comparing the size location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.

6b Comparing the composition, atmosphere, and surface features of objects in our solar system.

- I will be observing the students throughout the unit, formally and informally.

#### **Science Journal Responses (throughout unit)**

Students demonstrate an understanding of characteristics of the solar system by...

8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth

6a Identifying and comparing the size location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.

- Lesson: Bringing the Solar System to Life - Journal Response

I will have the students take out their science journals and depending on what planet they have selected. Explain the orbit, rotation, and evolution of (name of planet).

Journal Prompts:

Draw (insert planet here) Orbit

Draw (insert planet here) Revolution  
Draw (insert planet here) Rotation

Alternative:

Demonstrate Orbit

Demonstrate Revolution

Demonstrate Rotation

**Class Discussion (ex. Pre assessment, Cooperative Learning Structures, etc.)  
(throughout unit)**

ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships

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6b Comparing the composition, atmosphere, and surface features of objects in our solar system.

- Pre assessment (Lesson: Introduction to the Solar System)
- Cooperative Learning Structures: Line up & Think-Pair-Share (Lessons: Introduction to the Solar System & Planet Location in the Solar System)

**Worksheets (throughout unit)**

ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships

ESS2 (3-4)-8 Students demonstrate an understanding of characteristics of the solar system by...

8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth

**ESS2 (5-8) MAS-6**

Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

**ESS2 (5-6)-6** Students demonstrate an understanding of characteristics of the solar system by...

**6a** Identifying and comparing the size location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.

**6b** Comparing the composition, atmosphere, and surface features of objects in our solar system.

- Worksheets will be given out throughout the unit (Lessons: Introduction to the Solar System & Planet Location in the Solar System)

**GRASPS Performance (End of unit)**

**ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships**

**ESS2 (3-4)-8** Students demonstrate an understanding of characteristics of the solar system by...

**8a** Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth

**ESS2 (5-8) MAS-6**


Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

**ESS2 (5-6)-6** Students demonstrate an understanding of characteristics of the solar system by...

**6a** Identifying and comparing the size location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.

**6b** Comparing the composition, atmosphere, and surface features of objects in our solar system.

- Students are tour guides for their designated planet during GRASPS assessment assignment



## GRASPS Assessment Assignment

As a result of this performance, students will be able to:

1. Use their student-made models to demonstrate the size, location, distance, and movement of the objects in our solar system.
2. Compare the composition, atmosphere, and surface features of objects in our solar system.

### PERFORMANCE:

1. Children will use their models of the planets with appropriate size.
2. Take the class outside if possible or set up your classroom for the performance. Have the students make the nine (ten/eleven) planet paths marked on ground or floor with string or chalk.
3. Have one student hold each planet (in pairs if worked on it together). Have the teacher or have students take turns holding the yellow model of the sun.
4. The "sun" stands in the middle of a circle. The students will take their places on the correct paths (orbit).
5. Prior to the performance an invitation to be an astronaut for the day will be accompanied with a boarding pass (ticket) for an exploration ride on the (name) Space Shuttle will be taken home to the family and given to the kindergarten or first grade class.
6. Students will stand and wait for students of other classes or families to come to their planet.
7. Students who are the tour guides for their planet will then read from a brochure that they have written describing their planet which the visitor is visiting. The brochure will include information on why they would want to vacation here and what they would do while they are there.



## STANDARDS

**ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships**

**ESS2 (3-4)-8 Students demonstrate an understanding of characteristics of the solar system by...**

**8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth**

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**ESS2 (5-6)-6 Students demonstrate an understanding of characteristics of the solar system by...**

**6a Identifying and comparing the size, location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.**

# PLANET VACATION

A planet vacation would certainly be interesting. You could end up frozen solid, burnt to a crisp, or squashed flatter than a pancake by gravity.

Where would you go?

You are tour guide promoters and you are trying to convince people to visit and stay on your planet. Your task is to design a vacation brochure that is fun and exciting in order to catch the eye of the visiting astronauts. Inside the brochure, you will need to include information on why they would want to vacation here, what they would do while they are there, and any items they would need to bring with them to make their visit more pleasurable. Be creative! The sky's the limit, or should I say the Universe's the limit!

## RUBRIC - MODEL

4 - Student has made an appropriate sized model to represent their planet. The student has included the correct color of the planet and has included the correct number moons and rings if appropriate.

3 - Student has made an appropriate sized model to represent their planet. The student has included the correct color of the planet. The student has included moons and rings if appropriate although they may not be of the right amount.

2 - Student has not made an appropriate sized model to represent their planet. The student has included the correct color of the planet. The student did not include moons or rings if appropriate.

1 - Student has not made an appropriate sized model to represent their planet. The student has not included the correct color of the planet. The student did not include moons or rings if appropriate

*Nice specificity / connection to objectives  
What size ranges do you expect?*

## RUBRIC – BROCHURE/CONTENT

4 – In the planet brochure, the student displays a high level of subject knowledge in describing the distance, movement, composition, atmosphere, and surface features of the planet in an interesting way. The student has explained why a visitor would want to visit the planet including 4 or more things to do and items to bring while they are on the planet.

3 – In the planet brochure, the student displays a moderate level of subject knowledge in describing the distance, movement, composition, atmosphere, and surface features of the planet in an interesting way. The student has explained why a visitor would want to visit the planet including 2-3 things to do and items to bring while they are on the planet.

2 – In the planet brochure, the student displays a fair level of subject knowledge in describing the distance, movement, composition, atmosphere, and surface features of the planet in a non-interesting way. The student has explained why a visitor would want to visit the planet including 1-2 things to do and items to bring while they are on the planet.

1 – In the planet brochure, the student displays a low level of subject knowledge in describing the distance, movement, composition, atmosphere, and surface features of the planet in a non-interesting way. The student has not explained why a visitor would want to visit the planet and has not included things to do or items to bring while they are on the planet.

*Nice specificity  
and connection  
to objectives*

## RUBRIC – PERFORMANCE

4 – The student takes their place on the correct orbit (path). The student speaks clearly and audibly. The student makes eye contact to engage audience. The student shows incredible enthusiasm for the topic, presenting information in an exceptionally creative manner that fully engages audience. The student makes effective use of visual aids (planet) and/or handouts (brochure) to support presentation.

3 – The student takes their place on the correct orbit (path). The student speaks clearly and audibly. The student makes eye contact to engage audience. The student shows enthusiasm for the topic, presenting information in a creative manner that engages audience. The student makes effective use of visual aids (planet) and/or handouts (brochure) to support presentation.

2 – The student takes their place on the correct orbit (path). The student speaks clearly and audibly. The student makes little eye contact. The student shows little enthusiasm for the topic. The student does not use visual aids (planet) and/or handouts (brochure) to support presentation.

1 – The student takes their place on the correct orbit (path). The student does not speak clearly or audibly. The student makes very little eye contact. The student is not enthusiastic for the topic. The student does not use visual aids (planet) and/or handouts (brochure) to support presentation.

*good to  
split performance  
from content*

# BROCHURE ABOUT PLANET

\_\_\_ 1) Name of Planet: \_\_\_\_\_

\_\_\_ 2) Distance from the sun: \_\_\_\_\_

\_\_\_ 3) Revolution period: \_\_\_\_\_

\_\_\_ 4) Rotation period: \_\_\_\_\_

\_\_\_ 5) Number of moons: \_\_\_\_\_

\_\_\_ 6) Number of Rings: \_\_\_\_\_

\_\_\_ 7) Atmosphere: \_\_\_\_\_

*Students determine size? like the open-ended nature of this prompt.*

## PLANET MODEL

\_\_\_ 1) Name of Planet: \_\_\_\_\_

\_\_\_ 2) Size of planet model: \_\_\_\_\_

\_\_\_ rationale for size of model: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_ 3) Color of planet model: \_\_\_\_\_

\_\_\_ rationale for color of model: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*How do you scaffold/support students in accomplishing this?*

### SOLAR SYSTEM UNIT PLAN

Date	Lesson Topic & Goals	Activities	Evaluation
<b>*</b>	<p><b>Introduction to the Solar System</b></p> <p>At the end of this lesson, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Make a list of things they know about the Solar System</li> <li>2. Make a list of the planets found in the Solar System</li> </ol>	<p><b>Read: Magic School Bus – Lost in the Solar system</b></p> <p><b>Cooperative Learning Structure: Think-Pair-Share</b></p>	<p><b>Pre assessment</b></p> <p><b>Class Discussion</b></p> <p><b>Think-Pair-Share</b></p> <p><b>Science Journal Responses</b></p> <p><b>Worksheet</b></p>
<b>*</b>	<p><b>Planet Location in the Solar System</b></p> <p>At the end of this lesson, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Demonstrate the location of the planets</li> </ol>	<p><b>Read: 11 Planets a new view of the solar system</b></p> <p><b>Cooperative Learning Structure: Line Up</b></p>	<p><b>Class discussion of reading</b></p> <p><b>Class discussion of the Line ups</b></p> <p><b>Worksheet</b></p>
	<p><b>What is a Planet?</b></p> <p>At the end of this lesson, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Define what a planet is</li> <li>2. List the differences between a planet and a dwarf planet</li> </ol>	<p><b>Read excerpts from 11 planets</b></p> <p><b>Look at NASA website</b></p>	<p><b>Class discussion</b></p> <p><b>Science Journal Responses</b></p>
	<p><b>Introduction of the Planet (Name of Planet)</b></p> <p><b>11 total lessons for each planet</b></p> <p>At the end of this lesson, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Make a list of the characteristics of the planet</li> <li>2. Describe at least two of these characteristics</li> </ol>	<p><b>NASA Videos (of each planet)</b></p>	<p><b>Class Discussion</b></p> <p><b>Science Journal Responses</b></p>

	<p align="center"><b>Planet Models (At least 2 days)</b></p> <p>At the end of this lesson, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Make appropriate sized models to represent their chosen/assigned/randomly selected planet including color, moons, and rings if appropriate</li> </ol>	<p align="center"><b>Building the models</b></p>	<p align="center"><b>Teacher observation of the models</b></p>
*	<p align="center"><b>Bringing the Solar System to Life</b></p> <p>At the end of this lesson, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Use their student made, appropriate sized, models to demonstrate revolution and rotation of the planets around the sun</li> <li>2. Give definitions of revolution, rotation, and orbit</li> <li>3. Demonstrate location and distance using their models</li> </ol>	<p align="center"><b>Model the Vocabulary</b></p> <p align="center"><b>Spinning of the globe to show rotation and revolution</b></p> <p align="center"><b>Have students perform as planets</b></p>	<p align="center"><b>Class Discussion</b></p> <p align="center"><b>Teacher observation of their performance</b></p> <p align="center"><b>Science Journal Responses</b></p>
	<p align="center"><b>Planet Vacation Brochure (Day 1 - Brainstorming &amp; Draft) (Day 2 - Feedback, Revisions &amp; Final Product)</b></p> <p>At the end of this lesson, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Make a planet brochure that</li> </ol>	<p align="center"><b>My big busy space activity book provides example for vacation brochures</b></p>	<p align="center"><b>Students' brochures for final assessment</b></p>



*Nice application*

	<p>displays a level of subject knowledge in describing the distance, movement, composition, atmosphere, and surface features of the planet and explain why a visitor would want to visit the planet including things to do and items to bring while they are on the planet</p>		
	<p><b>Tickets to the Space Shuttle Launch</b></p> <p><b>(Day 1 - Brainstorming &amp; Draft)</b>  <b>(Day 2 - Feedback, Revisions &amp; Final Product)</b></p> <p>At the end of this lesson, students will be able to:</p> <p>1. Make a ticket to give to their families to invite to the performance</p>	<p><b>Examples of tickets</b></p>	<p><b>Class discussion</b></p> <p><b>Group activity</b></p>
<p><b>*</b></p>	<p><b>GRASPS Performance</b></p> <p><b>(Day 1 - Rehearsal)</b>  <b>(Day 2 - Performance)</b></p> <p>As a result of this performance, students will be able to:</p> <p>1. Use their student made models to demonstrate the size, location, distance, and movement of the objects in our solar system.</p> <p>2. Compare the composition, atmosphere, and surface features of objects in our solar system.</p>	<p><b>Students are tour guides for their planets</b></p>	<p><b>Planet Model</b></p> <p><b>Planet Brochures</b></p> <p><b>Performance</b></p>

**Emergency PLAN "B" (one lesson)**

<b>Plan B location</b>	<b>Lesson Topic and Goals</b>	<b>Activities</b>	<b>Evaluation</b>
	<b>Ellipses activity</b>	<b>Create ellipses of a planet</b>	<b>Compare the two ellipses you have drawn. Does the distance between two foci affect the ellipses' shape?</b>  <b>Predict what shape you will draw if you remove one of the thumbtacks (foci). Try it.</b>
	<b>Powers of 10 Video</b>	<b>Watch Video</b>	<b>Class Discussion and Journal Response</b>

\* Denotes Selected Lesson Plans

## Solar System Unit

<b>Grade/Content Area</b>	Grade 5
<b>Lesson Title</b>	Introduction to the Solar System
<b>GLEs/GSEs</b>	<p>ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships</p> <p>ESS2 (3-4)-8 Students demonstrate an understanding of characteristics of the solar system by...</p> <p>8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth</p> <p>ESS2 (5-8) MAS-6 Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).</p> <p>ESS2 (5-6)-6 Students demonstrate an understanding of characteristics of the solar system by...</p> <p>6a Identifying and comparing the size, location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.</p>
<b>Context of the Lesson</b>	The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships. The solar system is a very abstract concept for children. This activity is designed to introduce the children to the Solar System.
<b>Opportunities to Learn</b>	Students will be given the opportunity to volunteer to discuss their ideas in group discussion. Students will be given the opportunity to write down different ideas individually.
<b>Objectives</b>	<p>Students will be introduced to the Solar System.</p> <p>At the end of this lesson, students will be able to:</p> <ul style="list-style-type: none"> <li>• Make a list of things they know about the Solar System</li> <li>• Make a list of the planets found in the Solar System</li> </ul>
<b>Instructional Procedures</b>	<p><b>Opening:</b> I will greet the children and go over the rules of the classroom. I will then leave the room for a brief moment pretending that the principal is outside the door and would like to see me. I will come back into the classroom dressed as an Astronaut. I will introduce this unit with a class discussion. I will tell the children that they'll be studying the Solar</p>

*management issue:  
Perhaps  
→ have students working on a task so they have something to be doing while you are "out"*

System and that I am interested in learning about what they already know. I will hear from volunteers and accept their thoughts without judgment or correction. I may want to ask the children to clarify their idea, but will not push too hard. This is not a time to teach but, rather, to collect information about the range of understanding and experience in the class.

**Engagement:**

After the class discussion I will ask the students to write in their science journals everything they know about the Solar System and to include ideas you think may be right but you aren't sure about and also things others have told you about the Solar System. I will prompt them by asking opened ended questions such as, "What is the solar system?", "Have you ever wondered about other planets or life from outer space?", "What if there is life out there, would it change the way you looked up at the night sky?", "How have the planets changed over time?", and "Do you ever wonder about travel to the other planets?" I will then introduce the book "The Magic School Bus, Lost in the Solar System". I will have them look at the front of the book and the 5 objects (picture of the sun, the space suit, picture of asteroid belt, picture of planet earth, and picture of the school bus) and using the Cooperative Learning Structure: Think-Pair-Share, I will have them think about what they think the book is about just by looking at the cover of the book and the objects presented and share with partner and then with the class. In Think-Pair-Share, a problem is posed; students think alone about the questions for a specified amount of time, and then form pairs to discuss the question with someone in the class. During share time, students are called upon to share the answer with the class as a whole. I will then read the book to the class. The students will keep in mind the objects that were presented. This is done to spark interest in the book and keep them focused on the story. After the reading, we will discuss the book and see how close the story was to what they thought before we read it.

**Closure:** I will have the students complete the worksheet.

Great idea!

2 separate activities

Providing journal sheets with these prompts would help to scaffold this activity

Nice literacy tie

## Assessment

The students will be assessed through their responses in their science journals, solar system worksheet, and through class discussion.

### 4-Exceeds Proficiency!

The student was highly engaged in class discussions. The student was highly engaged in the class activity. The student was able to demonstrate a clear understanding of the new vocabulary. The student displays a high level of subject knowledge in their science journal response and solar system worksheet.

### 3-Proficient!

The student participated in class discussions. The student participated in the class activity. The student was able to demonstrate a basic understanding of the new vocabulary. The student displays a moderate level of subject knowledge in their science journal response and solar system worksheet.

### 2-Approaching Proficiency.

The student participated very little in class discussions. The student was participated very little in the class activity. The student was unable to demonstrate a basic understanding of the new vocabulary. The student displays a fair level of subject knowledge in their science journal response and solar system worksheet.

### 1-Not Proficient.

The student did not participate in class discussions. The student did not participate in the class activity. The student was unable to demonstrate a basic understanding of the vocabulary. The student displays a low level of subject knowledge in their science journal response and solar system worksheet.

nice  
rubric  
structure  
#  
you should  
make  
rubric  
specific  
to each  
journal  
entry  
cs:  
specific  
vocabulary  
concepts  
conveyed

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Solar System

Unscramble the letters to spell the words.

1. UNS \_\_\_\_\_
2. UCYRREM \_\_\_\_\_
3. USVNE \_\_\_\_\_
4. THERA \_\_\_\_\_
5. RMSA \_\_\_\_\_
6. UAUSRN \_\_\_\_\_
7. TPNNEEU \_\_\_\_\_
8. TIRJEUP \_\_\_\_\_
9. TUNSAR \_\_\_\_\_
10. EODASIRT \_\_\_\_\_
11. EORMTE \_\_\_\_\_
12. MTECO \_\_\_\_\_
13. ECPSA \_\_\_\_\_
14. TRSA \_\_\_\_\_
15. KLYMI AYW \_\_\_\_\_
16. CKBAL OEHL \_\_\_\_\_
17. LXAYGA \_\_\_\_\_
18. AELTPN \_\_\_\_\_
19. ONMO \_\_\_\_\_
20. ITOBR \_\_\_\_\_
21. UOANTASTR \_\_\_\_\_
22. NOMSRTERAO \_\_\_\_\_

*How does  
this  
connect  
to  
objectives?*

### Solar System

1. SUN 2. MERCURY 3. VENUS 4. EARTH
5. MARS 6. URANUS 7. NEPTUNE 8. JUPITER
9. SATURN 10. ASTEROID 11. METEOR 12. COMET
13. SPACE 14. STAR 15. MILKY WAY 16. BLACK HOLE
17. GALAXY 18. PLANET 19. MOON 20. ORBIT
21. ASTRONAUT 22. ASTRONOMER

### Solar System Unit

<b>Grade/Content Area</b>	Grade 5
<b>Lesson Title</b>	Planet Location in the Solar System
<b>GLEs/GSEs</b>	<p>ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships</p> <p>ESS2 (3-4)-8 Students demonstrate an understanding of characteristics of the solar system by...</p> <p>8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth</p> <p>ESS2 (5-8) MAS-6 Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).</p> <p>ESS2 (5-6)-6 Students demonstrate an understanding of characteristics of the solar system by...</p> <p>6a Identifying and comparing the size, location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.</p>
<b>Context of the Lesson</b>	The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships. The solar system is a very abstract concept for children. This activity is designed to show the location of the planets in the solar system
<b>Opportunities to Learn</b>	Questioning in group and individual activities will engage the students in thinking skills. Students will be given the opportunity to write down different ideas individually.
<b>Objectives</b>	<p>Students will continue to familiarize themselves with the solar system.</p> <p>At the end of this lesson, students will be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate the location of the planets</li> </ul>
<b>Instructional Procedures</b>	<p><b>Opening:</b> Greet the children, go over the rules of the classroom, and tell them the activity for today is the location of the planets in the solar system. I will review what we learned from the previous class.</p>

	<p><b>Engagement:</b>  I will introduce the planets location in the solar system by having a shared reading of the book, "11 Planets a new view of the solar system". A discussion will follow the reading. I will show the map of the solar system on the front wall of the classroom and explain the order and name of each planet. As I pass by each planet I will label it or I will ask the students to label the map with stick ups. In this introduction, I will allow the students to discover to names of the planets and I will only facilitate their learning by showing them where they can find the names (books, internet, science magazines, etc.) I will then use the Cooperative Learning Structure: Line Up. I will have the children line up in the order of the planets. I will announce the task the students must accomplish. I will announce that they must line up in order of the planets starting with the sun. The students will position themselves in a single file line per teacher instruction. This can be whole group or small groups. I will then give the specific task to the students. I will give each group a set of index cards with the names of the planets on them. I will give them index cards with the names of the inner planets. The students will work together to accomplish the task and realign themselves accordingly. I will ask a group member to describe the solution to the class. I will the have the next group line up and give them index cards with the names of the outer planets. I will have the other groups look at the line ups and assess correctness. I will then have another group line up and give them index cards with the names of all the planets (Mercury, Venus, Earth, Mars, Ceres, Jupiter, Saturn, Uranus, Neptune, Pluto and Eris). We will discuss the line up as a class.</p> <p><b>Closure:</b>  I will have the students complete the worksheet.</p>
<p><b>Assessment</b></p>	<p>The students will be assessed through their responses from the space investigator worksheet, and through class discussion.</p> <p><b>4-Exceeds Proficiency!</b>  The student was highly engaged in class discussions. The student was highly engaged in the class activity. The student was able to demonstrate a clear understanding of the new vocabulary. The student displays a high level of subject knowledge in their space investigator worksheet response.</p> <p><b>3-Proficient!</b>  The student participated in class discussions. The student participated in the class activity. The student was able to</p>

Line up -  
This is a great assessment also!

} make this rubric specific to the activity



demonstrate a basic understanding of the new vocabulary. The student displays a moderate level of subject knowledge in their space investigator worksheet response.

**2-Approaching Proficiency.**

The student participated very little in class discussions. The student was participated very little in the class activity. The student was unable to demonstrate a basic understanding of the new vocabulary. The student displays a fair level of subject knowledge in their space investigator worksheet response.

**1-Not Proficient.**

The student did not participate in class discussions. The student did not participate in the class activity. The student was unable to demonstrate a basic understanding of the vocabulary. The student displays a low level of subject knowledge in their space investigator worksheet response.

Your task as a **Space Investigator** is to find out information about planets in our Solar System.

### **Our Solar System**

1. What does the word 'Solar' mean? \_\_\_\_\_

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2. Why do we call it the Solar System? \_\_\_\_\_

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3. How many planets are in the Solar System? \_\_\_\_\_

4. Name the planets of our Solar System in order, starting with the closest planet to the sun.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_

5. The planets can be divided into the inner planets and the outer planets. What divides them?

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Name of RIC student: Kristian Coutu  
 Name of Clinical Instructor: Dr. Corinne McKamey

Lesson Topic: **Bringing the Solar System to Life**

Date of lesson:

**Learning goals:** What will students know and be able to do at the end of the lesson? *(make sure to think broadly across different science domains: science knowledge, science process skills, laboratory – procedural knowledge, and scientific attitudes)*

The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships. The solar system is a very abstract concept for children. This activity is designed to show children the ideas of revolution and rotation.

Students will continue to familiarize themselves with the solar system.

At the end of this lesson, students will be able to:

- Use their student made, appropriate sized, models to demonstrate revolution and rotation of the planets around the sun
- Give definitions of revolution, rotation, and orbit
- Demonstrate location and distance using their models

**Types of Summative (at the gate) Assessments:\***

**Aligned with standards (GLE's)**

Teacher observation  
 Class Discussion

ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships

ESS2 (3-4)-8 Students demonstrate an understanding of characteristics of the solar system by...

8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth

ESS2 (5-8) MAS-6

Compare and contrast planets based on

	<p>data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).</p> <p>ESS2 (5-6)-6 Students demonstrate an understanding of characteristics of the solar system by...</p> <p>6a Identifying and comparing the size location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.</p>
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**Materials needed:**

- Previously made planet models
- Shirts or Pin née (color code students)
- Chalk or string to mark orbits (color coded)
- Resource material to check orbits of the eleven planets

**Key concepts & vocabulary:** *what are the words that students will need to know? Use kid-friendly definitions*

- Orbit - path around the sun
- Revolution - travel around the sun
- Rotation – the spin of the planet

**Types of Formative (on the way) Assessments\***

The students will be assessed through their demonstration of their movements around the sun, use of the globe, responses in their science journals, and through class discussion.

Engaging students	
Connections to real world and/or opportunities for students to bring their world/experience into lesson	Extension activities and/or Extra scaffolding or accommodations
Class discussion will provide opportunity for the children to express their ideas.	<p>Go over Rules and Safety</p> <p>Run a Lap around Pluto's (any of the orbits) orbit to burn off some energy</p> <p>Color Code orbits</p> <p>Color Code Students</p> <p>Do different drills for each vocabulary word</p> <p>Let someone spin the globe and walk around a "sun" to show "rotation" and "revolution". For children who have trouble keeping "rotation" and "revolution" straight, here is a tip: the middle sound of "rotation" has the same vowel sound as "day" and it takes the earth one day to rotate.</p>
How does this lesson position students? [What role or roles will students assume?]	
Students will role play to demonstrate the universe and its connection to the sun.	

} Nice memory strategy

### Activity plan

"E"*	Descript. of activity	Descript. of assessment and evidence (if any) collected*
<p><b>1E: Engagement</b></p> <p><i>Lesson "hook." Excite students.</i></p> <p><i>What do students know? Want to find out? Connect to students lives and interests.</i></p>	<p>Students will engage in a class discussion revolving around movement of objects in the solar system. Students will role play to demonstrate the universe and its connection to the sun. Students will use their models of the planets to make our class into the solar system.</p>	<p>Responses during class discussion</p>
<p><b>2E: Exploration</b></p> <p><i>Activity or prompt that allows students to explore concepts. Often groupwork. Provides students with a common experience.</i></p>	<p>Let someone spin the globe and walk around a "sun" to show "rotation" and "revolution". For children who have trouble keeping "rotation" and "revolution" straight, here is a tip: the middle sound of "rotation" has the same vowel sound as "day" and it takes the earth one day to rotate.</p>	<p>Responses during class discussion during activity</p>
<p><b>3E: Explanation</b></p> <p><i>Definitions, concepts, skills explained. Often a lecture format, but can be debriefing, student research or reading.</i></p>	<p>Definitions of orbit, revolution, and rotation are introduced during the activity.</p> <p>I will model the vocabulary</p>	<p>Responses during class discussion during activity</p>
<p><b>4E: Extension</b></p> <p><i>Apply concepts in a new way. Students refine skills, explore concept in more nuanced way or in a different learning style.</i></p>	<p>I will go over rules and safety prior to going outside. I will take the students (color coded) outside or into the gym if available or use the classroom. I will have the eleven planet paths marked on ground or floor with string or <u>chalk</u> (color coded). I will hold the sun. The sun stands in the middle of the circle. I will have students take their places on the correct orbit for their planet. I will have the children walk their path or "orbit" around the sun one at a time making sure</p>	<p>Teacher observation of student performance during activity</p> <p><i>See the local football coach</i></p>

	<p>the student never leaves their own orbits. This travel around the sun is called "revolution". I will introduce this term now. After the children have orbited the sun once, I will bring in the added concept of "rotation". While moving around the sun, the children should start to spin around like tops. Caution them against becoming dizzy. This demonstrates "rotation". I will tell the children that it takes one year for the earth to rotate on its own axis. After the students have orbited the sun once, I will have them perform together for a whole class presentation on our solar system.</p> <p>Color code orbits Color code students Run laps around (insert planet here) orbit</p>	<p>Will students be saying speaking the term (rotation, revolution) that they are performing? How to reinforce the vocabulary term? connector to concept?</p>
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<p><b>5E: Evaluation</b></p> <p><i>**Students demonstrate what they know and can do vis a vis learning goals and objectives.</i></p>	<p>I will have the students take out their science journals and depending on what planet they have selected. Explain the orbit, rotation, and evolution of (insert planet here).</p> <p>Journal Prompts:</p> <p>Draw (insert planet here) Orbit</p> <p>Draw (insert planet here) Revolution</p> <p>Draw (insert planet here) Rotation</p> <p>Alternative:</p> <p>Demonstrate Orbit</p> <p>Demonstrate Revolution</p> <p>Demonstrate Rotation</p>	<p>Nice! aligned with activity</p>
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What is your "plan B" for this lesson for whole class if lesson doesn't work individual students who may not be ready for this?

Name of RIC student: [REDACTED]

Name of Clinical Instructor: Dr. Corine McKamey

Field Trip Topic: Museum of Natural History & Planetarium

**Learning goals:** What will students know and be able to do at the end of the field trip? *(make sure to think broadly across different science domains: science knowledge, science process skills, laboratory – procedural knowledge, and scientific attitudes)*

Make a list of things they know about the Solar System

Make a list of the planets found in the Solar System

Demonstrate the location of the planets

Make a list of the characteristics of the planet

**Assessments:**

**Aligned with standards (GLE's)**

Completed Worksheet

Class Discussion after field trip

ESS2 – The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships

ESS2 (3-4)-8 Students demonstrate an understanding of characteristics of the solar system by...

8a Recognizing that the sun is the center of our solar system, the Earth is one of several planets that orbits the sun and the moon orbits the Earth

ESS2 (5-8) MAS-6

Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

ESS2 (5-6)-6 Students demonstrate an understanding of characteristics of the solar system by...

6a Identifying and comparing the size location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.



6b Comparing the composition, atmosphere, and surface features of objects in our solar system.

**Materials needed:**

Pencil  
Worksheet  
Chaperones  
Color coded shirts for groups of student

**Key concepts & vocabulary:** *what are the words that students will need to know? Use kid-friendly definitions*

Universe - the totality of everything that exists  
Solar System - consists of the Sun and the objects bound to it by gravity  
Planet - is a celestial body orbiting a star  
Rotation - the spin of the planet  
Revolution - travel around the sun  
Orbit - path around the sun

**Summary of trip outing**

**Summary:**

The students will be space travelers who will be exploring the planets of our solar system. They need to gather information about each of the planets to bring back to Earth to give to the scientists who are working on ways to survive and move to other worlds as Earth is not far from being no longer habitable. Studying our planetary neighbors is the basic thing to do to achieve the ultimate goal of conquering the vastness of space and travelling through it to find another habitable planet.

**Details** (location, contact info, cost per student (omit cost of bus /driver)):

**Director**

Renée Gamba  
Education Department  
Museum of Natural History  
Roger Williams Park  
Providence, RI 02905  
Tel: (401) 785-9457 x247

**Planetarium Program**

All shows are available for reservation at 9:30am, 10:30am and 11:30am.  
Introductory discussion included.  
Program duration: 1 hour, 45 minutes for grade K  
\$100 up to 25 students, each additional \$4.00 per student  
\$4.00 per chaperone. Teachers are free.  
Fee includes Museum admission.

**Chaperone Requirements for Planetarium or Workshop**

Minimum 1 adult (teacher or parent chaperone) for every 10 students, maximum 1 adult for every 5 students.

**Planetarium Programs**

**Our Place in Space (Grades 3-6)**

RI GSEs: ESS2(3-4)-8, ESS2(5-6)-6, ESS2(5-6)-8, ESS3(5-6)-9

Explore our solar system and discover each planet's place in space.

Engaging students	
Connections to real world and/or opportunities for students to bring their world/experience into lesson	Extension activities and/or Extra scaffolding or accommodations
Students decide what characteristics are important for human survival	Go over Rules and Safety  Color Code Students
How does this trip position students? [What role or roles will students assume?]	
Space travelers	

### Activity plan

	Descript. of activity	Descript. of assessment and evidence (if any) collected*
<b>Pre-trip preparation</b> May include: "hook" Overview of trip Content Goals Behavioral Expectations for trip Assigning students groups and/or roles Safety	The students will be space travelers who will be exploring the planets of our solar system. They need to gather information about each of the planets to bring back to Earth to give to the scientists who are working on ways to survive and move to other worlds as Earth is not far from being no longer habitable.	[often pre-assessment]  Students to decide what is important for the survival of the human race
<b>Experience prompt</b> What activities/experiences will the students be doing? Students need to know ahead of time	Students decide what planet characteristics are important for human survival	[often formative]
<b>Trip Activity 1</b>	Space travelers investigation	[often formative]  Space travelers worksheet
<b>Trip Activity 2</b>	None	[often formative]
<b>Assessment</b> How will you assess students' learning of the goals of the trip?	Completed Worksheet  Class Discussion after field trip	
<b>Classroom Extension Activities (optional)</b> Will students use data, artifacts, knowledge gained on trip for classroom activities post trip?		



## Reflection: Why is the Solar System unit important?

Because my friend, whether we like it or not, we are part of it, albeit a very tiny part but nonetheless a part. All that you see and cannot see like the air/gas came from the stars. Yes and even we human beings and all living things are made up of atoms which are what stars are also made up of. The basic element with one atomic unit is the Hydrogen atom, which fuses to become the next element Helium which has atomic no.2. Atoms fuse to become the next heavier element. We are mainly Carbon, Water (H<sub>2</sub>O), and Nitrogen. So, studying planets will help us survive as a species in the long term. There is more to life than just planet Earth or our Solar System or the Milky Way Galaxy. There is a whole universe out there just waiting to be explored. Our planet earth will not be here forever and if we are to survive as a species we have to know our place not only in the solar system but in the whole universe. Asteroids could destroy Earth. And the Sun, which is a star, will eventually burn out. What will we do then? We have to be space travelers in the future to survive and move to other worlds when Earth is no longer habitable. We cannot achieve this if we do not know the basics. Studying our planetary neighbors is the basic thing to do to achieve the ultimate goal of conquering the vastness of space and travelling through it to find another habitable planet. Can there be life on other planets or galaxies? Inquiring minds want to know.

To go back quite a few years it was said, "How can you tell where you are going if you don't know where you have been?" I realize this sounds a little out in left field, but it does have relevance. Planet earth is forever changing. By studying what has happened on other planets, that are older than the Earth, we can get some ideas of what may happen to our own planet. Planets that had water do not now. What does this mean for planet Earth? In better understanding the

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with one additional proton,  
well, sort of  
fusion would  
be a  
large  
explosion.  
The number  
of protons  
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atom  
determines  
which  
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is!

make ups of other planets we can make a more accurate analysis of what actually helped to create the Earth. Via the use of our orbiting as well as stationary telescopes we can view the births and deaths of far off stars which allow us to better understand what is happening and will happen to our own sun. Studying the solar system is in a way studying our ancient relatives. They looked to the heavens and lived in awe of what they saw. They imagined all sorts of fantastic events being played out in the patterns of the stars (planets) and marveled in the mystery. They realized when the stars were in a certain location some particular event would take place. They had no calendars, but they had a very refined knowledge of the constellations. Because of our study of the solar system and the constellations we can only now begin to understand what ancient ~~man~~<sup>humans</sup> knew and lived by. Plus, the information contained in the information about our solar system, galaxy and universe is extremely interesting.

Science Resources



The Magic School Bus: Lost In The Solar System by Joanna Cole

My Big Busy Space Activity Book by Jo Douglass

All About The Planets DVD - Schlessinger Media

Solar System Puzzle Kit – NASA electronic resource

11 Planets by David Aguilar

Exploring the Solar System: A history with 22 activities

Guide to Space by Peter Bond

Our Solar System by Seymour Simon

The NASA video: "The Solar System."

Course Description uses lines from Star Wars and Star Trek

*Nice!*