Paul Coleman

**SINGLE SUBJECT DAILY LESSON DESIGN FORMAT**

**FOR RESOURCES ON HOW TO COMPLETE THIS FORM, SEE** [**https://sites.google.com/site/lessondesignresources/home**](https://sites.google.com/site/lessondesignresources/home)

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| TITLE OF LESSON  Parallax | CURRICULUM AREA & GRADE LEVEL  8th Grade Science | | DATE OF LESSON  10/30/13 |
| CA CONTENT STANDARD(S) ADDRESSED  4c. Students know how to use astronomical units and light years as measures of distance between the Sun, stars, and Earth. | | CA ELD STANDARD(S) ADDRESSED  12. Selecting language resources (expanding) | |
| BIG IDEA ADDRESSED (Enduring Understanding: WHY this material is important; how it fits in with the unit or theme)  This fits into our weekly look into astronomy. This week we will be looking into one method of how scientists measure the distance to stars called parallax. This is important because not only does this give us the distance to a star but it also can help us find the stars brightness, age, and other factors. This is one step to discovering our universe and our place in it. | | ESSENTIAL QUESTIONS ADDRESSED  What is parallax?  How does this help us find the distance to stars? | |
| OBJECTIVE(S) OR LEARNING GOAL(S)—*choose type(s) as appropriate*   * After listening to discussions, SWBAT increase their academic vocabulary by writing and discussing using these key words. * After the discussion on parallax, SWBAT understand parallax by using their own examples of the phenomenon and answer questions about it. | | ASSESSMENT(S)—*choose type(s) as appropriate*   * Diagnostic- Assess students’ understanding by the GQ before the lesson begins to gauge where the students are. * Formative- Students will demonstrate understanding by participating in demonstration and answering questions. * Formative- Students will answer questions relating to the article. * Summative- Teacher will ask wrap up questions after the video | |
| PREDICTION OF LIKELY DIFFICULTIES STUDENTS MAY ENCOUNTER WITH THIS MATERIAL *(possible misconceptions or assumptions)*  This is a good class that has a demonstration where everyone can participate. The problem this has is that students could get off task especially when we do the larger class participation. You will have to center the students before we get to the larger participation. | | | |
| INSTRUCTIONAL STRATEGIES: *What the teacher does to help students cope with the difficulties in order to succeed*   |  |  |  | | --- | --- | --- | | STEPS (Fill in each box with specific information) | LEARNING STYLE(S) ADDRESSED | REASONS/RATIONALES | | Anticipatory Set (“Into”)  Teacher puts on music and projects Guiding Question on projector. “How do we measure the distances to stars?” Teacher will conduct a class discussion after the class has finished writing the GQ. | Auditory and Visual | Get students excited about starting class. This is a class routine. Gives teacher a diagnostic assessment. | | Instruction (“Through”)  Teacher will introduce the notion of parallax and guide students along with an example of parallax with the students using their thumbs. Teacher will direct students to hold thumb one foot from face. Students will close one eye and then the other. Students will note the distance of the apparent move between different perspectives. Students will repeat process with arm completely outstretched. Then students will compare angle with different distances object (thumb) is from face.  Teacher will work on the whiteboard to show that objects are farther distances from the observers have a smaller parallax than closer objects. Show how we can use parallax to find the distances to objects.  Teacher will then ask students in middle of the classroom try to record the parallax of a distant object (document cam) using their eyes. This will be difficult and they will not be able to record it very effectively. Teacher will ask students what is a more effective way to measure the distance using parallax. Class will discover that it is better to use a distance where the perspectives are farther apart. From this the class will use two people at other corners of the class to measure the parallax of the doc cam. Here parallax will be much greater value making it a better way to measure distant objects.  Teacher will ask how this relates to finding the distances to stars. Teacher will use whiteboard to show how scientists use parallax to find the distance to stars by using the distance of the Earth’s orbit as the two points of perspective.  After understanding the basics of parallax, students will be better able to understand the article on parallax. | Auditory, visual, kinesthetic | Introduce the concept of parallax. Prepares students from discussion and demonstrations.  This will illustrate the demonstration on the board and make it clear for the students to see.  This is a good demonstration that will show that the greater the distance between the points of perspective the large parallax of object at a given distance. This will lead into why we measure from opposite ends of our orbit.  Brings relevance to exercise.  Background building. | | Guided Practice (“Through”)  Students will read article on parallax and then answer questions that will be written on board. Class will have discussion on questions after students have read. | Auditory | Read and use academic language. Formative assessment after students read. | | Closure *(summarize; make meaning of the lesson)*  Teacher will should summative video that summaries the key ideas of the lesson. | Auditory and visual | Wrap up video | | Transfer (“Beyond”) *(opportunities to apply the learning)*  Teacher will then ask the class closing questions about video and about the entire lesson. | Auditory | One last summative assessment to make sure that everyone understood the lesson. | |  |  |  | | | STUDENT ACTIVITIES: *What the students do*   |  |  |  | | --- | --- | --- | | STEPS (Fill in each box with specific information) | LEARNING STYLE(S) ADDRESSED | REASONS/RATIONALES | | Anticipatory Set (“Into”)  Listen to music and write down and answer GQ. Students will then share with their group table and then share with the whole class. | Auditory and Visual | This will guide their minds to be thinking about the exercise ahead and centered for class. | | Instruction (“Through”)  Students will listen to explanation on parallax and participate in thumb exercise described. Students will put thumb at two different distances from face and close one eye at a time noting the difference in the angle.  Students will follow whiteboard discussion and then participate in discussion.  Students will participate in activity to find the parallax of the document cam from different parts of the room.  Students will listen and discuss how this relates to the distance of stars. | Auditory, visual, kinesthetic | This will help the students visualize parallax and get them using their hands.  This will connect what they just saw visually to a diagram on the whiteboard.  This is another visual. | | Guided Practice (“Through”)  Students will read article and then discuss. | Auditory, visual | This will have the students read something they just discussed and then use academic vocabulary. | | Closure *(summarize; make meaning of the lesson)*  Students will watch video. | Auditory, visual | This is a good summarizing video to recap past ideas. | | Transfer (“Beyond”) (opportunities to apply the learning)  Students will discuss what they have just learned. | Auditory | This will recap the lesson. | |  |  |  | | |
| INFO ABOUT ENGLISH LANGUAGE LEARNERS: *Consider students individually and as a group*   * Sheyla- level 3- Strong speaking skills. Needs help writing. * Vicente- level 3- Very strong student. Help with writing. * Cesar- level 3- Good speaker. Will participate. * Rachael- level 5- Shy but has good responses. Works hard. * Daniela- level 4- Smart student. Works well in groups. * Victor- level 4- Shy. Good writer.   This is a good group but extra help needs to be given for new vocabulary and with writing. Students may require extra help with labs. | | INFO ABOUT STUDENTS W/ SPECIAL NEEDS (include gifted students) : *Consider students individually & collectively*   * Nash- RSP- Very smart student. Will participate frequently. * Sarah- RSP- Nash’s sister. Also very smart. * Bryce- RSP- Very enthusiastic. Loves science and animals. * Sebastian- RSP- Has difficulty writing. One of our lower students. * Alex- RSP- Participates in class. May need extra help. * Jordan- RSP- Has difficulty writing.   Most of our RSP students can be involved with the class and learn at a standard pace. Sebastian and Alex are two students that may need extra assistance. | |
| DIFFERENTIATION FOR ENGLISH LANGUAGE LEARNERS—*choose area(s) as necessary based on information above*   * Process (***how*** *the material is learned*)- This scaffolding and background building for the article. | | DIFFERENTIATION FOR STUDENTS WITH SPECIAL NEEDS— *choose area(s) as necessary based on information above*   * Content (***what*** *material—including key vocabulary—is learned*)- We will repetitively use new vocab reinforce these new concept. | |
| RESOURCES (*Attach materials needed to implement the lesson—e.g., power point presentation, text, graphic organizer)*  Whiteboard, dry erase pens, powerpoint, article on parallax, video on parallax | |  | |