

The aspect of science understanding that I am going to target is the ability for students to be able to explain phenomena in their everyday lives. This connects to my teaching through the Earth, Sun and Moon unit that I am the lead teacher on. The majority of our science and social studies content is taught through a Walk To model. For the last thirty minutes of the school day, all of the fourth grade students “walk to” another classroom to receive direct instruction on either science or social studies concepts. The students that are identified as needed intensive or strategic reading interventions through our universal screener (DiBELS Next) go to a reading intervention at this time. The reading interventions are heavily immersed with informational text that connect to fourth grade science and social studies concepts so those students are receiving some exposure to the content as well. As a reciprocal measure, the teachers in charge of leading a science or social studies Walk To try to incorporate informational text and active engagement techniques that encourage continued growth in reading fluency. The rotations for each Walk To are currently between thirteen and fourteen days. This is not much time to get in depth with many concepts, so classroom teachers are encouraged to dive further into topics covered in Walk To in their own classrooms.

The phenomena that I will be asking students to explain is the reason for day and night. This is one of the main objectives for my Walk To. My district is still following the Michigan Grade Level Content Expectations in science and social studies. The standards that I have found the greatest connection to this aspect of science understanding are as follows:

S.IP.04.16 Construct simple charts and graphs from data and observations.

S.RS.04.14 Use data/samples as evidence to separate fact from opinion.

E.ST.04.22 Explain that the spin of the Earth creates day and night.

E.ST.04.25 Describe the apparent movement of the sun and moon across the sky through day/night and the seasons.

The method that I will be using to help students explain everyday phenomena is the P-E-O Technique as explained by Page Keeley in the article “Using the P-E-O Technique” (Keeley, 2013). The P-E-O Technique follows the format of prediction (P), explanation (E) and observation (O). The vital part to this process is asking students to go back and revise an explanation when their observations of a scientific demonstration do not match their initial predictions. This method could be used to help instruct on other main concepts of my Walk To including the phases of the moon, the changing of seasons and describing the characteristics of the Sun, Moon and Earth. Yet, considering the limited amount of time I will have with my students for each rotation and for the sake of learning processes on my behalf, I will be focusing on one topic: day and night. As my instructional habits with the P-E-O Technique improve, I hope to be implementing it in other lessons.

The format for my lesson will be as follows:

Lesson 1

- Recitation of daily poem (focused on Sun, Moon or Earth) as students are seated at learning area (large carpeted area facing the SmartBoard projector/white board)
- Distribution of blank 8 ½ by 11 inch paper
- Ask students to use different ways to describe what time it is
 - Anticipated answers include: afternoon, after lunch, after recess, exact time (i.e. 1:40)
 - Depending on answers provided, guide students through various questions to come up with term “day”
- Direct student attention to piece of paper
- Ask them to write out answer to questions “What causes day on Earth? What causes night?”
- Students will be encouraged to answer both questions with one answer and/or answer each question separately
- Once students are given ample time to scribe answer (approximately 3 minutes), have them put papers behind them and form a semi-circle around area rug in center of learning space
- Lamp with no shade will be placed in the center of the area rug
- Students will be asked what the lamp represents, appropriate answer to be “Sun”

- Students will be then directed to a globe that has a marker (small ball of playdoh) of where current city (DeWitt, MI) would be on globe
- Invite students to manipulate or move globe to reflect current frame of time, again referring to day
- Choose one student “A,” to manipulate or move globe to show day in DeWitt
- Ask other students in semi-circle to describe what student did, regardless if manipulation was right
- Ask students to agree or disagree with movement and explain why, use explanations to guide student A to further explain choice for movement, even if incorrect
- If student A did not manipulate globe to have DeWitt facing Sun, ask for another volunteer (student B) to demonstrate
- Repeat process with students until clear explanation is made that connects DeWitt must be facing towards Sun to be having day
 - This may include that students see sun rise and know that it is a “new” day, sun is in sky during day, when DeWitt is not facing Sun, it is night
- Depending on time of discussion, students may need to clean up materials and exit to homeroom or Lesson 2 may begin today

Lesson 2

- Recitation of daily poem (focused on Sun, Moon or Earth) as students are seated at learning area (large carpeted area facing the SmartBoard projector/white board)
- Teacher directs students to sit in semi-circle around area rug, as done in previous lesson
- Teacher recaps lesson events from yesterday: students wrote why we have day and why we have night, we came to a group consensus that to have day, our part of the Earth must be facing the Sun
- Teacher then invites students to revisit predictions from day before and revise any idea that may not capture the accurate information
- While students are revising and reflecting, teacher will put lamp in center of area rug
- When students are done revising (approximately 2-3 minutes), teacher will remind students that the lamp represents the Sun
- Globe is brought out again with same marker on DeWitt, MI
- Teacher calls student to again manipulate globe to show day in DeWitt
 - If this results in inaccurate representation, same format of discussion from Lesson 1 should be followed
 - If this results in accurate representation, student should be praised and teacher should summarize that in order to be day in DeWitt, our part of the Earth must be facing the Sun
- Teacher then asks for volunteer to manipulate or move globe to show night in DeWitt
 - Same format from Lesson 1 should be followed
 - After a student attempts, other students are asked to describe movement and agree or disagree with movement
 - Teacher should let conversation occur as long as discussion stays on topic
 - If other topics are brought up or more inaccuracies come out, teacher should step in and remind students of original question
 - If necessary, teacher should direct attention to spot on opposite side of globe of DeWitt
 - Have student manipulate globe to show day in DeWitt and then provide all students an opportunity to see opposite side of globe
 - Discuss observations, again with students leading discussion and teacher facilitating and monitoring conversation
- Depending on time of discussion, students may need to clean up materials and exit to homeroom, or Lesson 3 may begin today

Lesson 3

- Recitation of daily poem (focused on Sun, Moon or Earth) as students are seated at learning area (large carpeted area facing the SmartBoard projector/white board)
- Teacher directs students to sit in semi-circle around area rug, as done in previous lesson

- Lamp and globe will be set up as in previous lessons
- Teacher recaps information students shared in previous two lessons: in order to be day in DeWitt our part of the Earth must be facing the Sun, in order to be night, our part of the Earth must be facing away from the Sun
- Teacher will move playdoh ball and put on other continent and ask if the same is for any other place on Earth
- Students are asked to give findings and teacher will serve as facilitator of discussion to maintain focus on topic
- Teacher then invites students to revisit predictions from day before and revise any idea that may not capture the accurate information
- When students are done revising (approximately 2-3 minutes), teacher will ask question “In order to be day in any place, that part of the Earth must be facing the Sun. In order to be night, that part of Earth must be facing away from the Sun. How do the change from day to night occur?”
- Students will be asked to come up and manipulate or move globe to show how this occurs
- Discussion format of previous lessons will continue
 - After student moves globe, he/she will be asked to justify reasoning, other students will be asked to agree or disagree based on observations and knowledge from previous lessons
 - Teacher will facilitate and monitor conversation to keep focused on topic and will ask questions if necessary to guide conversation back on topic
 - Possible answers could include Earth going around Sun, the Sun’s apparent movement across the sky during day, Earth rotating on axis
- Once discussion leads to movement of Earth, students will be directed to watch short video clip titled “Movements of the Earth and Moon” accessed through Discovery Education (www.discoveryeducation.com)
- After video clip, students will be directed to prediction one more time to revise for any inaccuracies or to add more detail to make explanation more clear