TC Name: Valena Spencer
Day & Date: Day 3 March 9th, 2021
Subject Area & Grade Level: 6th Grade Earth Science- 4th Period
Number of Students in Class: 23

DAY 3: LESSON AND ASSESSMENT PLAN

Curriculum Standards
GSE (Georgia Standards of Excellence) / National Curriculum Standards
https://www.georgiastandards.org/Frameworks/Pages/BrowseFrameworks/Frameworks.aspx

S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.

f. Construct an explanation of how the movement of lithospheric plates, called plate tectonics, can cause major geologic events such as earthquakes and volcanic eruptions. (Clarification statement: Include convergent, divergent, and transform boundaries.)

ISTE Technology Standard
https://www.iste.org/standards/for-students

1. **Empowered Learner:** Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

Mode of Instruction
Virtual – 100% of my students have elected to continue virtual learning.

Learning Objective/Goal(s)

- K: I can explain the theories of plate tectonics, continental drift and sea floor spreading.
- K: I can list and identify the three main types of plate boundaries:
  - Divergent margins
  - Convergent margins (including collision and subduction zones)
  - Transform margins.
- K: I can locate the various plate margins/boundaries and identify spatial patterns on a world map
- R: I can use models to construct an explanation of how plates interact at the three types of boundaries
- R: I can construct an explanation of how the interaction of plates cause geological events such as earthquakes (seismic) and volcanos.

Specific learning objective: Students will over the three-day lesson plan be able to explain how major geologic events are created by the movement of the Earth's Tectonic Plates.

- Students will complete and participate in the following activity:
  - Prior knowledge: knowledge or skill from a previous unit of the Earth's Layers are needed for today's lesson.
  - Review of the composition of Earth's Layers: knowledge or skill from a prioritized standard in Unit 3.1
  - Vocabulary usage: ongoing skills students will need to be able to do with accuracy and ease the current work.
- Students will complete a pre-assessment of their prior knowledge and a post assessment that directly assesses the student's mastery of today's learning goal. If the assignment is not completed in class, the students will complete for homework.
- Students will complete an in-class assignment where they will demonstrate their ability to draw and describe plate tectonics.

Historically Responsive Framework: Teacher will introduce land features of Georgia and other regions of the United States. The students live in Georgia and will be introduced to travel to other states.

- Identities: Students will learn about land features of the state where they are from.
- Skills: Students will learn how to recognize the land features of the United States.
- Intellect: Students will discover how the knowledge of geographical features relates to geology.

- Criticality: Students will discuss how understanding of land features can help when planning a trip or the construction of roads to provide transportation to various parts of the United States or underserved communities.

Formative and Summative Assessment

The teacher will use to assess student learning, students will complete three formative assessment activities during the lesson.

- After the teacher models the use of the Nearpod for the opening, students will complete a check-for-understanding activity using the technology.
  - Teacher will monitor all students as they participate in the activities to collect data on and areas of success.
  - Teacher will use data to adjust direct instruction and differentiate.
- Students will participate an in-class activity where they will demonstrate their understanding of the movement of the plates of the Earth causes geologic events.
- Students will complete a Quick Write in Its Learning describing what they have learned about Tectonic Plates.
  - Students will complete and submit in Its learning. If the assignment is not completed in class, the students will complete for homework.
  - The post-assessment, formative assessment will count as a grade.

Differentiation, Modification(s), & Accommodation(s)

Students with Disabilities and 504 plans: Students with Disabilities and/or 504 plans will be given extra time for assessments and assignments. Teacher will read aloud all questions multiple times and give instructions both verbally and in writing (in the chat box). Instructions will be broken down into small steps. Teacher will indicate what to write down and give ample time for students to write and draw on the Nearpod.

Students struggling with reading comprehension: Teacher will read aloud all questions multiple times and give instructions both verbally and in writing (in the chat box).

Instructional Strategies & Learning Tasks to Support Diverse Learners' Needs

Introduction or Student Spark (10 minutes)

- Teacher will Say "hello" to each student as they log in.
- Teacher will state the standard for the day and let the students know specifically what will be covered during the lesson.
- Teacher will reintroduce vocabulary needed for today's lesson.
- Teacher will state learning target for the day and the success criteria.
- Teacher will open with current event of Tsunami in New Zealand
- https://www.wavy.com/news/2-massive-earthquakes-strike-new-zealand-tsunami-warning-issued/
- Teacher will read and ask for volunteers to read the article aloud.
- Teacher will ask questions. What caused the tsunami? Does this relate to tectonic plates? How are the people kept safe? Who tells people to evacuate? Do you know what a Tsunami is?
- Teacher will show 1 minute of the video to establish a visual of tsunami damage.
- https://www.youtube.com/watch?v=a0daUcIY-3s
- Teacher will facilitate a discussion around the current event.

Body (60 minutes)

Active Engagement/Inquiry 20 minutes)
Teacher Stamps Learning & Check for Understanding

- Teacher will place link in the chat for the Nearpod Lesson.

- Students will log on to the Nearpod link. Click here Nearpod Opening Video – The discovery of discovered plate tectonics.
- Students will complete the Video on Plate Tectonics that has questions embedded, to check for understanding.
- Students will have 10 minutes to complete the video lesson.
- Teacher will take attendance now.
- Teacher will use data from Nearpod Reports to assess student learning.

Differentiation:

- Students with challenges to gathering audible information or technology can answer the questions in the word document below.
- Teacher will place the Questions document in Its Learning for completion.
- Nearpod questions on paper Plate Tectonics Explained - Minute Earth Nearpod Questions.pdf

Work Period (40 minutes)

- Teacher will present the ADI Lab for Plate Tectonics
- Teacher will use the PowerPoint link below to Explain the Lab to Students
  Plate Tectonic ADI LAB ESS 06 Plate Interactions Guidance PPT.pptx
- Teacher will use the following worksheet to guide the investigation.
  ADI 6 Plate Tectonics.pdf
- (Teacher will use modified worksheet or chunk the worksheet for beginning and developing learners)
- Teacher will demonstrate and model the use the websites.
- Teacher and students will work collaboratively explore the virtual lab simulation.
- Teacher will describe the Nature of Science and how it relates to investigation.
- Teacher will use a Word document (as a group) or the Whiteboard.fi (for individuals) to allow students to construct their arguments.
- Students will learn how to construct an initial argument as a part of learning the empirical nature of science. Students should use the worksheet format described on the PowerPoint. The video below explains the difference between evidence and justification. Note, justification is similar to reasoning if you have used the CER framework before. ADI Video link (for Teacher only)

  - Teacher will select student volunteers to give their explanation of their thinking and describe tectonic plates.
  - Teacher will give each student 1 minute to speak.
  - Teacher will facilitate discussion that highlights explicit connections between student work and the goals of the lesson.
  - Teacher will address misconceptions that come up during the group work.
  - Teacher will use Talk Moves to facilitate the conversations.
  - Students may also answer in the chat.
- Teacher will use data collected to determine common misconceptions to address during instruction.
- Teacher will monitor (listen/coach, asks questions to assess/advance thinking, take anecdotal notes, etc.) of students as they work on problems to collect data.
- Teacher will give students control of the screen in the TEAMS app and allow the students to request control of the screen to participate and learn the function of the ADI Lab.

Teacher Stamps Learning & Check for Understanding (15 minutes)

- Teacher will share students will work with other students in the discussion on the Whteboard.fi.
- Teacher will monitor all students as they work on the Whiteboard.fi to collect data on areas of success and misconceptions.
- Teacher will use data to provide just-in-time direct instruction.
- Teacher will show this video for reinforcement and **Differentiation**. https://youtu.be/6I0m-kZaLFE
- Teacher will use this interactive for **Differentiation** Earthquakes and Volcanoes Interactive (pbslm-contrib.s3.amazonaws.com)

- Early finishers (extension)-Students will write a paragraph explaining the ADI Lab process.

Closing (15 minutes)

- Teacher will close by making conclusions and will clear up misconceptions.
- Students complete a Quick Write as a Post-Assessment. Students will complete this assessment in Its Learning.
- Students will complete Post-Assessment before the end of the class period.

Facilitation & Safety

- For online students, students will observe the protocol we established at the beginning of the year. Cameras do not have to be turned on, yet they are encouraged. Microphones will be muted unless the student is responding to the teacher. The chat box will only be used to discuss aspects of the course, and students will use appropriate language when posting a chat.
- For in-class students (not applicable for this class period), we will observe Rockdale County's Covid-19 policy. Students and teachers will always wear masks, and all students and teachers will remain a distance of at least 6 feet apart. Students and teachers will not be allowed to share supplies, so students must have their own supplies for the class.
- Desks are arranged in groups of two six feet apart for contact tracing. However, only one person will be allowed to sit at each group of desks due to Covid-19 regulations.
- Students will be required to adhere to classroom norms that are posted within the classroom.
- Disruptions will be handled according to Memorial Middle School's discipline procedures. To ensure engagement, teacher will call on both virtual and in-person students to answer questions.

Layered Texts and Other Materials

Nearpod.com ItsLearning.com Microsoft TEAMS
Rockdale County Curriculum Planning Guide

References

http://www.rockdaleschools.org/

Tenets of the nature of science — Science Learning Hub

Keeley, P. (2016). Formative Assessment Probes: Promoting learning by assessment - Talk Moves. *Science and Children*, *April/May*, 24–26. https://my.nsta.org/resource/103881/formative-assessment-probes-talk-moves

Keeley, P., & Tucker, L. (2016). *Uncovering Student Ideas in Earth and Environmental Science: 32 New Formative Assessment Probes* (1st ed.). National Science Teachers Association. https://rcpsscience-nsta-patron.eb20.com/Collections/ViewBook/a9f0723d-06fc-495f-ba74-c6985fe670b2

Muhammad, G. (2020). *Cultivating Genius: An Equity Framework for Culturally and Historically Responsive Literacy*. Scholastic.

Plate Tectonics Explained - Minute Earth Nearpod Questions.pdf

Schwartz, R. (2007). What's in a Word: How word choice can develop misconceptions about the Nature of Science. Science Scope