Those Mettlesome Middle Schoolers and PBL

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Implementation Plan

• Case 1: “Survivor Series: Mystic Mountains” (Mapping), Earth Science, Aug. 19 - Sept. 2

• Case 2: “Survivor Science: Quivering, Shivering Alps” (Earthquakes), Earth Science, Oct. 14 – Oct. 28

• Case 3: Sickle Cell Anemia (Genetics), Life Science, Jan. 6 – Feb. 17

• Case 4: Stream Monitoring, Life Science, Feb. 24 – Apr. 14
Case Descriptions: Earth Science

• Case 1: “Survivor Series: Mystic Mountains”
• Description: A group of middle school-aged students are selected to be contestants in the next Survivor television series. These teenagers are stranded on a mountain in North Georgia and seek help from Renfroe MS Earth Science students who construct a topographic map to help them survive.
• Learning Objectives: To construct and use a topographic map and key.

Case Descriptions: Earth Science

• Case 2: “Survivor Series: Quivering, Shivering Alps”
• Description: The Survivor team faces its first challenge. A mountain town has experienced a strange event, and the team must figure out what is happening and report to the town their findings.
• Learning Objectives: To apply and interpret the Mercalli Intensity Scale
Case Descriptions: Life Science

  - Description: A woman discovers that she is pregnant at the same time that her first child is diagnosed with sickle cell anemia.
  - Learning Objectives: To describe the principles of Mendelian genetics and apply those principles to a genetic disorder.

Case Descriptions: Life Science

- Case 4: Stream Monitoring (patterned after “Home, Home on the River”, Life Lines Online)
  - Description: Two friends find that their favorite camping site is now occupied by new houses. This discovery leads to a study of the effects of development on life in and around streams.
  - Learning Objectives: To evaluate the importance of ecological communities, especially freshwater river ecosystems.
Cases & QCC’s (Earth Science)

• Case 1, “Survivor Series: Mystic Mountains”, Mapping, QCC’s: 1, Scientific Inquiry Process; 2, Safety Skills; 3, SI Measurements; 10, Mapping & Symbols

• Case 2, “Survivor Science: Quivering, Shivering Alps”, Earthquakes, QCC’s: 1, Scientific Inquiry Process; 2, Safety Skills; 3, SI Measurements; 9, Recognition of constructive and destructive forces that change the Earth’s surface.

Cases & QCC’s (Life Science)

• Case 3, Sickle Cell Anemia, QCC’s: 1, Scientific Inquiry Process; 2, Safety Skills; 3, SI Measurements; 11, How principles of heredity apply to inherited traits; 12, Applied genetics

• Case 4, Stream Monitoring, QCC’s: 1, Scientific Inquiry Process; 2, Safety Skills; 3, SI Measurements; 5, Human interactions with the environment
Assessment

• Case 1, “Survivor Series: Mystic Mountains”, Mapping: Construction of a topographic map
• Case 2, “Survivor Series: Quivering, Shivering Alps”, Earthquakes: News broadcast/news article; map with plot of earthquake intensity
• Case 3, Sickle Cell Anemia: Construction of Punnett squares from a family pedigree
• Case 4, Stream Monitoring: Collection of chemical and physical data from a local stream (Shoal Creek)

Survivor Series: Mystic Mountains
Scene One

• “We’ve reached the destination point! Coordinates TBA” the pilot of the helicopter yelled to his four young passengers. Michael, Juanita, Tiffany, and Carlos excitedly looked at one another even though their stomachs were filled with butterflies. The mountains from above seemed endless, and the four teenagers had to survive on their own for one month. The television station had chosen them to be a team on the next Survivor series in which the setting was the mountains.
The helicopter touched down, and the students alighted on the rocks. “Isn’t he going to shut the helicopter off?” Juanita said. Not a second after she finished speaking, the helicopter lifted off the ground and was out of sight in a matter of minutes. The group stared at one another for a moment. They wondered what they would find in the mountain regions, and they worried that they would not be able to find their way. How would they know from their coordinates where they were or how high they were?

The group split up and surveyed the breathtaking scenery. The mountains and trees were in every direction and continued on as far as the eye could see. A light breeze blew, and the temperature was quite comfortable even though it was August…. Suddenly, Tiffany yelled, “Look over here! There’s a bag with stuff in it!”
**Survivor Series: Mystic Mountains**

**FACTS**
- Coordinates
- Need to survive mountains
- No supplies
- Found bag
- Cool temperature in August

**Questions**
- What natural resources are available to help them survive?
- What is in the bag – is it a survival kit?

**LEARNING ISSUES**
- What are coordinates? Latitude and longitude?
- What should be in a survival kit?

**HYPOTHESES**
- The bag contains a survival kit comprised of the following items…
- Water and plants are available for sustenance.
- Landforms in the mountain are…

**Survivor Series: Mystic Mountains**

- In scene two, the survivors discover a cell phone in which the battery is just strong enough to allow them one call. They call their friends at Renfroe MS to help them find out their coordinates. The students will eventually collect enough information to allow them to construct a topographic map so they can journey through the mountains.
Survivor Series: Mystic Mountains

- Objectives: Represent landforms, landform regions, elevation, contour intervals, depressions, relief, and slope on a topographic map. Construct and use a topographic map and key (scale and symbols).

- Student Products and Assessment: topographic maps and keys, student presentation of map, journal ("confessional"), quizzes, self-evaluation and peer evaluation.