Lesson 3: What is a Watershed?

Focusing Question: *What is our watershed? Where does our water come from? Where does our water go?*

Overview: Students are introduced to a sample watershed quest to learn what a quest is, what the core components of a quest are, and which products they will be responsible for creating in this unit.

Topical Understandings:
-   This region has been Native American homeland for thousands of years.
-   Native words and place names are found across the region
-   These words link to specific attributes of the region

Materials:
-   A topographic map of your community
-   Two photocopies of this map, enlarged to 11' x 17', then cut into pieces (the number of pieces should equal the number of students). Each student will receive two identical map pieces.
-   One photocopy of the full map (11' x 17') for each student
-   Magnifying lenses or loupes (optional)
-   Colored pencils

FIG.1

Length of time to complete: 60 minutes

Procedures:

1. Introduction: Learning to read a topographic map (15 minutes)
(**see fig.1**)
    a. Hand out the map pieces, giving two of the same pieces to each
       student. Ask them to set one piece aside.
    b. Ask them to look carefully at the piece for 30 seconds (silence
       helps).
    c. Begin by asking the following questions, allowing students to
       answer, then encouraging them, via follow-up, to teach each
       other.

• What are we looking at?	*A topographic map*
• How do you know?	*Elevation lines*
• What do you see on the map?	*Contour lines*
• How can you tell?	*Parallel lines, bold and numbers*
• What do the numbers show?	*Elevations*
• What do the darker lines indicate?	*100' intervals*
• What else do you see?	*Roads*
• How can you identify a road?	*Paired parallel lines*
• Who has a river or brook?	*Ask them to raise hands*
• How can you tell?	*A squiggly line moving downhill*

      • Can you find a lake or pond?
      • Where?
      • Can you see water coming into it?
      • From where?
      • Is water leaving?
      • From where?
      • Can you find geographic or political
        boundaries? Town lines? County
        lines? Parks? Wetlands? What else?

2. When the process outlined in No. 1 is exhausted, ask students to tape or glue one of their map pieces to a sheet of paper and create a key demonstrating their ability to read a topographical map. You (and/or your class) can brainstorm the appropriate categories/elements to include in the key

3. Students demonstrate their map-reading ability by creating a key. (15 minutes) (see fig.2)

4. Seeing the community as a whole (20 minutes)

Sample student product FIG.2

a. When students have completed their keys, ask, "Who thinks they have the bottom of the map?" "Who thinks they have the top?" Then invite them to put the puzzle together in silence. Watch the community and local watershed emerge as a whole.

b. Next hand out the 11" x 17" maps to your students, one map for each student. Brainstorm your list of key features (water courses, major geological features, etc.) and have students annotate and/or trace using colored pencils (or crayons). The students can color-code features of the watershed: ridgelines and mountains in green, water in blue, and so on.
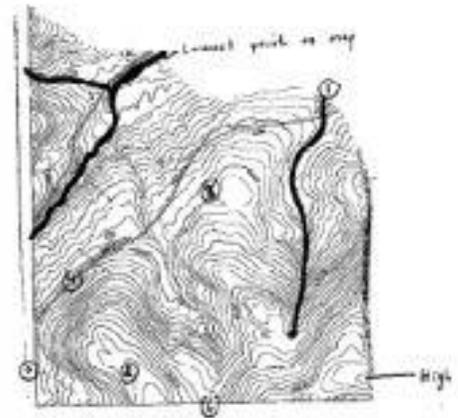
5. Drawing conclusions (10 minutes)

a. So what is the name of our watershed?

b. Are there main branches that feed the watershed?

c. Where does this water come from? Where does it go?

d. How does our community rely on the watershed?

6. Students complete the key and the color-coded map.

Assesment:

1. Students have produced clearly colored and labeled keys.
2. Students have produced colored and annotated watershed maps.

Evaluation Rubric:

PRODUCT	Unacceptable	Beginning to progress	Getting closer	Meets standard	Exemplary
Key	Key is both sloppy and incomplete	Key is either sloppy or incomplete	Key is neat and clear, but still incomplete	Key is neat and complete	Meets standard, plus is well executed and rich in detail
Watershed Maps	Map does not annotate or trace all features	Map traces some watershed features	Map traces most watershed features	Map clearly notes ridge lines, basin and water courses	Meets standard, plus is well executed and rich in detail