

Effects of the Monsoon as Seen Through Google Earth

Tami McInroy - Forest City High School, Forest City, Iowa

Grade Level (Req.): 9th grade	Content Area (Req.): Physical Geography, Human Geography, Technology	Unit (Opt.):
Connections to Other Disciplines (Opt.): <ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> </ul>		
Time Frame (Req.): 1-2 days	Goal (Req.): Students will understand the effects of monsoons.	
	Objective (Req.): Students will observe the changes in the landscape in Asia (specifically India) during the summer and winter monsoon. Students will understand that the monsoon start and end dates fluctuate a bit each year. Students will learn patterns of which monsoon seasons are in effect and when. Students will identify the challenges that come with each season.	
Materials Needed (Req.): <ul style="list-style-type: none"> <li>• Textbook or Internet diagrams of how the monsoon period works</li> <li>• Book: "Monsoon" by Uma Krishnaswami (ISBN # 0374350159)</li> <li>• Google Earth (currently version 6) installed on computers</li> <li>• Internet Access to run Google Earth</li> <li>•</li> <li>•</li> <li>•</li> </ul>	New Vocabulary (Opt.): <ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	
Anticipatory Set/Introduction [Inquiry Question is required] (Req.): How do monsoons affect people and their environment? Lead-in – Read "Monsoon", 32 pages		
Instructional Sequence/Procedure (Req.): <ol style="list-style-type: none"> <li>1. Students should have some background in monsoons before completing this lesson.</li> <li>2. Make sure students understand the monsoons in Asia are winds, not rain.</li> <li>3. Make sure students understand how to use Google Earth before starting this lesson.</li> <li>4. Read the book "Monsoon" as a precursor to the lesson, focusing on the emotions of people as the seasons change.</li> <li>5. Take students to the computer lab (or if a 1:1 school, have them download the most recent version of Google Earth on their laptops BEFORE this activity).</li> <li>6. Have students complete the attached activity using Google Earth in pairs or alone.</li> <li>7.</li> <li>8.</li> <li>9.</li> <li>10.</li> <li>11.</li> <li>12.</li> </ol>		

- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.

Formative Evaluation (Req.): Students' use of class time, student understanding while completing the attached activity

Assessment (Req.): Ideas: Students could do a similar activity about a different place in another country, such as Bangladesh, China, Myanmar (Burma), or ones in Africa affected by monsoons; the teacher could show images over time slowly to the class; then students could write about or discuss verbally the changes they see at different times of the year. Students could draw a piece of property in the monsoon-affected area of Asia, during winter, the off season, and the summer monsoon; drawings should include crops, typical weather, and people's feelings about the different seasons. Students could also write an essay about what they have learned about monsoons, including topics from the book read in class, diagrams viewed in the book or in class, what really stood out when looking at Google Earth, and any other information that is relevant.

Iowa Core Curriculum Standards Used (Req.):

- Geography, grade 9-12: Understand the use of geographic tools to locate and analyze information about people, places and environments.
- Geography, grade 9-12: Understand how human factors and the distribution of resources affect the development of society and the movement of populations.
- Geography, grade 9-12: Understand how physical and human processes shape the Earth's surface and major ecosystems.
- Technology Literacy (21st Century Skills), grade 9-12: Demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
- Technology Literacy (21st Century Skills), grade 9-12: Apply digital tools to gather, evaluate, and use information.
- 
- 
- 
- 
- 

Common Core Curriculum Standards Used (Opt.):

- 
- 
- 
- 
- 

NGS Standards Used (Req.):

- How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective

- How culture and experience influence people’s perceptions of places and regions
- The physical processes that shape the patterns of Earth’s surface
- The characteristics, distribution, and migration of human population on Earth’s surface
- 
- 
- 
- 
- 
- 

Five Themes of Geography Used (Req.):

- Location
- Place
- Human-Environmental Interaction
- Region
- 

School District Standards and Benchmarks (Opt.):

- 
- 
- 

21<sup>st</sup> Century Universal Constructs (Opt.):

Other Disciplinary Standards (Opt.):

- 
- 
- 
- 
- 

Other Essential Information (Opt.):

Other Resources (Opt.):

- 
- 
- 
-

- 1) Search for the Taj Mahal in Google Earth. What are the latitude & longitude coordinates of this famous place?  
\_\_\_\_\_
- 2) Find the name of the river north of the Taj Mahal. \_\_\_\_\_
- 3) Looking at the elevation when you move the mouse, which of the banks of the river is more shallow, the north or south bank?  
\_\_\_\_\_
- 4) What is the most current satellite data available (the exact date)? \_\_\_\_\_
- 5) On this date, is the region experiencing the winter monsoon, summer monsoon, or hot season? \_\_\_\_\_
- 6) Looking at the banks of the river in #2, how does the vegetation support your answer?  
\_\_\_\_\_
- 7) Now click on the old date at the bottom of the screen next to the clock. What is the date of the oldest satellite data available?  
\_\_\_\_\_
- 8) Even though this is the same time of year, look at the banks of the river again. What was there at this date that is not shown in the most recent image? \_\_\_\_\_
- 9) On the date bar at the top, scroll ahead to the next date. What is this date? \_\_\_\_\_
- 10) On this date, is the region experiencing the winter monsoon, summer monsoon, or hot season? \_\_\_\_\_
- 11) How can you tell? \_\_\_\_\_
- 12) What else is different about the river, compared to the oldest image? \_\_\_\_\_
- 13) What do you think is the reason for this? \_\_\_\_\_
- 14) Observe the vegetation around the Taj Mahal in this image compared to the oldest one. What is different and why?  
\_\_\_\_\_
- 15) Scroll ahead a tiny bit to the 10/5/2003 or 11/7/2003 date. Now, is the region experiencing the winter monsoon, summer monsoon, or hot season? \_\_\_\_\_
- 16) How can you tell? \_\_\_\_\_
- 17) What is different about the river, compared to the previous image? \_\_\_\_\_
- 18) What do you think is the reason for this? \_\_\_\_\_
- 19) In 2005, there were 2 sets of images taken very close together. What are the 2 dates? \_\_\_\_\_
- 20) What changes do you notice in the river between these dates?  
\_\_\_\_\_
- 21) Go ahead to 2/4/2006. What activity is taking place along the riverbank again? \_\_\_\_\_
- 22) Is there more or less of this activity than in question #6? Why do you think so?  
\_\_\_\_\_
- 23) On the date bar at the top, scroll ahead to the next date. What is this date? \_\_\_\_\_
- 24) On this date, is the region experiencing the winter monsoon, summer monsoon, or hot season? \_\_\_\_\_
- 25) How can you tell? \_\_\_\_\_
- 26) Scroll ahead to 12/12/2008. What changes to the river and landscape take place between now and 3/16/2009?  
\_\_\_\_\_
- 27) Finally scroll back to the most recent date. Then scroll between the oldest & most recent images quickly, & write down 2-3 observations you see of changes that took place over this time period. Mention things you did not list in question #8 already.  
\_\_\_\_\_  
\_\_\_\_\_