Teacher's Guide
Video Podcast: A Model of Florida's Groundwater

Southwest Florida Water Management District   Grade 7

This teacher's guide supports the Southwest Florida Water Management District's (SWFWMD) video podcast episode *A Model of Florida's Groundwater*, available at WaterMatters.org/Podcasts. This guide includes Florida standards, Common Core Standards, vocabulary, suggested activities and links to additional resources. Students will need computer and internet access for this lesson.

Lesson Time: Approximately 2.5 hours (divided among several class periods)

Objectives: Students will learn how water filters through west-central Florida's karst terrain and underground layers where it is stored in aquifers and eventually brought to the surface again for human use. Students will also learn how human actions pollute groundwater — sometimes making it unfit for human use. With the use of technology, students will create a visual display to educate others on preventing groundwater pollution.

Vocabulary:

Aquifer: A spongelike layer of underground limestone and rocks that can hold and release water

Groundwater: Any water that has trickled into the ground; usually part of an aquifer

Karst: Underlying bedrock (mostly limestone) that dissolves because of acidic water passing through it

Recharge: The replenishment of water into the aquifer

Sinkhole: A natural depression in the land surface caused when bedrock erodes underground and dissolves from acidic water

Stormwater runoff: Rainwater that picks up pollution as it washes over roads, parking lots, driveways, rooftops and other hard surfaces and washes into water bodies

Surface water: Water that can be seen on the earth's surface

Well: A hole drilled into the aquifer so that groundwater can be brought to the surface

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Lesson

Engage:

(15 minutes) Prior to watching the podcast, pose the following essential question to your students: <u>How does Florida's groundwater become polluted?</u>

Watch the podcast. Review the vocabulary terms and ask aloud the following questions to activate prior knowledge:

- What is groundwater?
- What causes groundwater to become polluted?
- How are humans affected by polluted groundwater?
- How might the environment be affected by polluted groundwater?

Explore/Explain:

(Two 45-minute blocks) Divide students into teams. Each team will use what they learned in the podcast, and gather relevant information from other sources, to create a Public Service Announcement (PSA) in iMovie or Windows Movie Maker. Ask students to cite evidence from their research that supports information and inferences made in the PSA.

Allow students to be creative and chose the viewpoint they'd like to take — anything groundwater related! Give students some ideas: what is groundwater, Florida's aquifer systems, groundwater pollutants, recent news events, and so on. During the first 45-minute block, students should plan their PSAs by conducting research, writing a script and finding images from *ClipPix* and/or *ClipVideo*. During the second 45-minute block, students will create and finalize their PSAs, combining visuals and voiceovers.

Extend and Evaluate:

(45 minutes) Ask each group to present its PSA to the class. Assess each PSA for organized delivery of information and content accurateness.

Additional Links

WaterMatters.org/Publications/Files/Waterweb_Groundwater.pdf

WaterMatters.org/Publications/Files/Flas_Aquifers.pdf

WaterMatters.org/Watersheds

WaterMatters.org/Springs

http://etc.usf.edu/clippix/pictures/groundwater-model/

http://etc.usf.edu/clipvideo/galleries/groundwater-model/

ga.water.usgs.gov/edu/mearthgw.html

water.epa.gov/type/groundwater/

Standards

Next Generation Sunshine State Standards:

SC.7.E.6.6: Identify the impact that humans have had on earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.

Common Core State Standards:

CCSS.ELA-Literacy.SL.7.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. Vocabulary:

CCSS.ELA-Literacy.SL.7.2 Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.

CCSS.ELA-Literacy.SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

CCSS.ELA-Literacy.SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

CCSS.ELA-Literacy.L.7.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 7 reading and content*, choosing flexibly from a range of strategies.

CCSS.ELA-Literacy.W.7.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-Literacy.W.7.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-Literacy.W.7.6 Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.

CCSS.ELA-Literacy.W.7.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

CCSS.ELA-Literacy.RI.7.1 Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-Literacy.RI.7.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.

CCSS.ELA-Literacy.RI.7.5 Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.