How to Use *FLOODED* for a Science Class/Subject

A TYPICAL SCHOOL YEAR GENERALLY INCLUDES ROUGHLY 180 DAYS OF STUDY. WITH THE IDEAS PRESENTED BELOW, *FLOODED* COULD BE USED AS AN ENTIRE YEAR’S WORTH OF SCIENCE INSTRUCTION.

1. **LESSONS:**
   - Each week, a student should study in depth and learn, on average, four pages of material from the book, depending upon the depth of the material in the section being studied.
   - The student should take the time to understand the terms that are used in the text, using the Glossary (and other sources) where needed.
   - He/she should also look up and read each Bible verse cited, understanding the application of the verse to the text.
   - **Charts:** Helpful charts have been provided for you to use as visual aids, which you can pull up on a computer or print out for the students.
   - **Videos:** Several 3-10 minute supplementary videos have been developed that explore other relevant topics that are not covered in the book or that delve deeper into subjects that are covered in the book. Under “Teaching Tools”/“Helpful Videos”/“Short Videos” on the Web site, you will find the videos organized by the chapter in the book that they supplement.

2. **WEEKLY QUIZZES OR EXAMS:**
   - If a student were to memorize and thoroughly understand the terms in the Glossary, his/her knowledge of many aspects of science would be greatly enhanced. Students could, therefore, be assigned the relevant vocabulary from the 200+ word Glossary that corresponds to the Chapter they are studying (see “Chapter Vocabulary” for a sequential list of when each of the Glossary terms first appear in the text). Quizzes could be given to test their understanding and memory of the terms.
   - Using the 200+ questions that have been provided in the book, quizzes and exams could be given to test the students’ understanding and memory of the material. The answers to the questions can be found here.

3. **OBSERVATIONAL SCIENCE:**
   - Throughout the year, lab assignments could be given to give the students hands-on experience carrying out basic science that would reinforce concepts from the book.
   - **Examples:**
     1. **Biology lab** (Chapter 1): [Baraminology] Obtain a microscope. Have the student gather/observe dozens of different types of living things found in their neighborhood (e.g., grasses, leaves, bugs, birds, etc.) and area zoo and write down (in a field notebook) similarities and differences
between the living things that could be used to determine which organisms belong in the same biblical "kinds." Have the student draw a Creation orchard of the kinds of organisms he/she studied.

2. **Paleontology lab (Chapter 1):** Obtain a fossil kit (e.g., [www.cornerstone-edsupply.com](http://www.cornerstone-edsupply.com)). Have the student study the different types of fossils, documenting differences and similarities between the fossils in the kit and determining into which groups from Chapter 1 they belong.

3. **Anthropology lab (Chapter 2):** Using butcher paper (or any wide paper that can be unrolled and cut at great lengths), the student should measure and sketch Goliath and King Og using an 18-inch cubit as well as a 22-inch cubit. Hang the sketches on a tall wall, alongside sketches of average height, modern men of Indonesia and the Netherlands.

4. **Geology lab (Chapter 3):** Simulate plate tectonics with graham crackers (oceanic tectonic plate), angel food cake (continental plate), and cool whip (mantle material), having the student observe and discuss the effects of the three types of tectonic plate movement—divergence, transform, continental-continental convergence, and continental-oceanic convergence (e.g., [https://www.paulding.k12.ga.us/cms/lib/GA01903603/Centricity/Domain/2517/GrahamCrackerPlateTectonicsLab.docx.pdf](https://www.paulding.k12.ga.us/cms/lib/GA01903603/Centricity/Domain/2517/GrahamCrackerPlateTectonicsLab.docx.pdf)).

5. **Astronomy lab (Chapter 4):** Obtain a telescope and a star constellation app (e.g., “Star Chart”) on a mobile device. Have the student find (with the app) and observe (with the telescope) the location of various constellations and planets and document the differences in star brightness and size as seen through a telescope. Be sure to have the student find and observe the best example of a spiral galaxy, Andromeda—the closest large galaxy to our own.

6. **Chemistry lab (Chapter 4):** Put 100 Skittles (or M&Ms) in two closed boxes (100 in each box). In the first box, have the Skittles positioned “S” side up, with the box open for the student to see. In the second box, have the 100 Skittles positioned randomly, with some “S”s up and some down, with the box closed where the student cannot see the Skittles. Shake the first box in front of the student a few times and then count/record/remove the Skittles that are now “S”-down. Repeat the experiment until all of the Skittles have been removed. Have the student graph the results with the number of “S”-up Skittles on the Y-axis (representing the number of radioactive atoms remaining in a rock) and which box shaking event it corresponds with (1st, 2nd, 3rd, etc.) on the X-axis (representing the half-life number). Repeat the experiment with the second box with the following changes: (1) do not show the student the Skittles before he first shakes it; (2) after shaking the box the first time and the student counting/recording/removing the “S” down Skittles, have the student leave the box and room for 60 seconds to get a drink. While the student is gone, quickly turn 10 of the “S” up Skittles over, add 4 more “S” down Skittles to the box, and then have the student return and continue the experiment as before—shake, count/record/remove, shake, count/record/remove, etc. Graph the results again, starting with 100 “S” up Skittles at “half-life” 0. Have the student highlight the assumptions undergirding the 2nd experiment, especially highlighting how the three unreliable assumptions of radiometric dating techniques could have affected the results of the experiment. After the student has finished, explain the changes you made on the second experiment and discuss the results and implications.
7. **Physics lab** (Chapter 5)—Meteorites and scientific predictions: have the student fill a small container with baking powder. Using a meter stick, have him/her drop a marble from different heights and measure the size of the impact crater made from each marble drop. Then drop the marble from different heights for him/her, without letting the student see from how high the marble was dropped. Have the student predict the heights from which the marble dropped based on the size of the impact craters.

8. **Engineering labs**:
   - Marine engineering (Chapter 5)—In a pool, create rough waves to test various shaped Arks (e.g., cube, pyramid, upright cylinder, etc.) made using hollowed out Styrofoam blocks containing Lego figures sitting “on board.” Compare the shapes with a scaled version of the Ark (e.g., 300:50:30 → 15x2.5x1.5 inches), discussing the likely impact that the Flood would have on the structural integrity of an Ark made of such shapes and the passengers on board the Ark.
   - Civil Engineering (Chapter 6): Obtain a chisel, superglue, and small blocks of Styrofoam (e.g., 4x4x12 inches). Have the student figure out how to make a mortise and tenon joint using the supplies. Test the joint’s ability to resist twisting motion.

9. **Meteorology labs** (Chapter 7):
   - Ice Cores: Have the student use a Pringles can, gummy worms (representing frozen animals), chocolate chips (representing rocks/debris), water, and cocoa/sugar water to make edible ice cores (e.g., [https://www.sea.museum/discover/apps-and-games/kids-craft/arts-and-crafts-blogs/polar-science-experiment-how-to-make-edible-ice-cores](https://www.sea.museum/discover/apps-and-games/kids-craft/arts-and-crafts-blogs/polar-science-experiment-how-to-make-edible-ice-cores)). Have the student discuss what can be learned about past climate, etc. from studying ice cores and what the assumptions are which affect a meteorologist’s interpretations of ice cores.
   - Ice Age: Add 4 oz. of water to two identical bowls, and put them in the freezer until they freeze (about an hour). Remove the “ice sheets” from the freezer. Put one bowl on the kitchen counter and the other in the refrigerator for 30 minutes—roughly representing warmer and cooler Summers in the Arctic, respectively. [After 15 of those minutes, add 1 oz. of lukewarm water to each (representing annual rainfall).] Put the bowls back in the freezer (representing Winter). After 15 minutes, add 1 oz. of chilled water (from the fridge) to each (representing annual snow fall). Leave the bowls in the freezer for another 15 minutes before removing the bowls and repeating the above instructions. Upon removing the bowls from the freezer the second time, the student should observe and discuss the effects of cooler versus warmer summers on ice accumulation/melting (the Ice Age/Advance) at the poles, noting that whatever water was unfrozen after the winter would disappear from the polar ice cap, causing the caps to decrease in size.

10. **Genetics lab** (Chapter 8):
    - The Punnett Square given in the text is an example of a heterozygous (AaBb)-heterozygous (AaBb) dihybrid cross. Have the student draw and color Punnett Squares of both heterozygous (AaBb)-homozygous/dominant (AABB) and heterozygous (AaB-
b)-homozygous/recessive (aabb) dihybrid crosses, showing possible resultant skin colors and their likelihoods.

11. Geology labs:

- Speleology lab (Chapter 9): Travel to the nearest commercial tour cave, take the tour, and have the student document the various speleothems and evidences of hypogene speleogenesis using a camera and field journal. [Note that most tour guides either will not know about hypogene speleogenesis or will believe that carbonic acid dissolution explains their cave.]

- Speleology lab (Chapter 9): To roughly demonstrate hypogene speleogenesis, obtain an empty 20 oz. soda bottle and remove the label. Cut off and dispose of the top half of the bottle. Add approximately three inches of water to the bottom of the bottle (representing an underground water source). Cut a circular piece of a thin sponge with the diameter of the bottle that will fit tightly within the bottle and push it into the bottle, stopping about one inch above the water (representing rock overlying the water source). Stack two layers of sugar cubes on top of the sponge, tightly filling the entire surface area of the sponge (representing a soluble rock, like limestone). Cut another circular piece of a sponge with the diameter of the bottle, that will tightly squeeze into the bottle, and push it down so that it touches the sugar cubes. Have the students watch as you push the top sponge downward until the bottom sponge reaches the water (representing the accumulation of sediment/pressure on the surface of the ground in the Flood). Try to apply pressure evenly across the sponge, so that the edges do not move away from the bottle, allowing water to pour in between the sponge and the bottle. Keep applying pressure on the sponge until the water saturates the sponge and begins touching the sugar cubes, and then release the sponge. Have the students record what happens and discuss how the experiment parallels hypogene speleogenesis. What would happen if the pressure was much higher than you were applying (representing more ground surface pressure from more sediment and water above)? What would happen if the bottom sponge had cracks in it (representing fractures in the rock)? What would happen if, instead of pure water, an acid was mixed into the water? Repeat the experiment with Sprite® (i.e., water plus carbonic acid) instead of water in the base of the bottle. What would happen if an even stronger acid (e.g., sulfuric acid) was used?

- Petrology lab (Chapter 10): Obtain a geology kit with rocks (e.g., www.cornerstone-ed-supply.com) and rock testing equipment. Have the student document the differences and similarities between various types of sedimentary, igneous, and metamorphic rocks.

4) ESSAYS:

- Students can periodically be assigned papers on various Flood-related topics from the book, especially those topics that interest them. The topics/page numbers listed in the “Subject Index” and the verses in the “Bible Verse Index” of the book will point the students to the sections of the book that address those topics. Example topic ideas:
Introduction: According to the Bible, what is the purpose of science?

Chapter 1:
1. How do fossils form?
2. How might the general characteristics of the geologic column and fossil record be explained from a Flood perspective?
3. Discuss the distinctions between ornithischian and saurischian dinosaurs, theropod and sauropod dinosaurs, pterosaurs, and marine reptiles such as plesiosaurs, mosasaurs, and ichthyosaurs.

Chapter 2:
1. What is the strongest evidence for the reality of giants and why?
2. Why would it be reasonable to predict that very little evidence of human habitation will be found in Flood rock layers?

Chapter 3:
1. Discuss the different types of tectonic plate movement.
2. Discuss evidences for plate tectonics.
3. Discuss evidences for Pangaea.

Chapter 4:
1. Why is uniformitarianism an unreasonable and unreliable geologic assumption?
2. Why are the three faulty assumptions that underlie radiometric dating (discussed in the book) unreasonable assumptions?
3. Discuss what you believe are the three strongest evidences of a young Earth and why.
4. Discuss why neither Evolution nor Creation is observational science, but why Creation is still scientific.

Chapter 5: Discuss two biblical, two scientific, and two historical evidences of a global Flood.

Chapter 6: Pick and discuss two of your favorite quibbles from Chapter 6.

Chapter 7:
1. Discuss the evidences for and the causes of the Ice Age.
2. Discuss three examples that illustrate the great explanatory power of the post-Flood, biblical Ice Age.

Chapter 8:
1. Discuss how we know that the Egyptian pyramids were built after the Flood.
2. Discuss one of the genetic evidences that all humans descended from Adam and Eve.

Chapter 9: Discuss the differences between carbonic acid and sulfuric acid dissolution as cave forming processes.
5) FIELD TRIPS:

• There's nothing like a field trip to bring to life the material the students will be learning. Here are some highly recommended, relevant field trips that would perfectly complement the material covered in Flooded:

  1. Your local zoo (Chapter 1 field trip): This trip would be a great opportunity for students to do the Biology lab listed above. More than one such trip may be needed to allow them to finish the lab.

  2. Mt. St. Helens Volcano (Chapter 4 field trip)

  3. Ark Encounter, Williamstown, KY (Chapter 6 field trip): Consider taking your students/children to the life-sized replica of the biblical Ark. Students will see [animals, possible engineering, responses to common quibbles made against the Flood by skeptics, etc.; takes a whole day; see Creation Museum if possible]

  4. A local cave (Chapter 9 field trip): This trip would allow students to see various speleothems and to search for evidences of hypogene speleogenesis.

  5. Grand Canyon and surrounding sites, including Meteor Crater, Sunset Crater volcano, Petrified Forest, Painted Desert, and Grand Canyon Caverns (Chapter 10 field trip)

  6. A local natural history museum (Conclusion field trip)