



David Marshall
Christian Academy in
Japan

Science 8
38 students

Student Learning Result
“It’s important to be content, rather than wanting the latest technology.”

Tip
Connecting course content and Biblical principles is a skill. Students need repeated practice.

Unit
Electricity in Society,
8 weeks

Essential Question
How does science impact society?

Content
Electricity, applications and impacts of electricity, selfishness, contentment, rich/poor gap

Skills
Research, outlining, speaking, analyzing

Assessment
Presentation

Instructional Strategies
Direct instruction, discussion, experimentation, independent research

Resources
Electricity and Magnetism (Glencoe), Bible, web sites, sample devices, student experience with electricity

What are you excited about?

David: I’m excited about the way kids were able to see something as simple as PlayStation affects their lives and hearts, that technology has positive and negative impacts. During the presentations, one student said, “It’s important to be content, rather than wanting the latest technology.” Another student said as she demonstrated her blood sugar tester, “Without this device, I wouldn’t be alive...The Bible says we are not to murder, which means we are to protect life. This device protects lives.”

What were your students studying?

David: Students were studying how electricity works. They looked at electrons and how they move around in metals when given energy to do so. The students then studied how the ability of scientists to control this movement gives rise to a huge range of everyday devices that are easy to take for granted. For example, students learned how the movement of electrons is affected by magnets to make electric motors. They also looked at how a microscopic semi-conductor can be used as an information storage device by varying the flow of electricity through it.

What was the assessment prompt?

David: Give a 5-minute presentation on a piece of electricity-related technology in which you present the electronic device and the science of how it works and in which you respond to the following questions: How has this device impacted society? What’s a Biblical perspective of that impact?

How did you prepare your students for the assessment?

David: Students explored the basics of electricity with batteries and light bulbs, and they discussed how electricity impacts their lives and how their lives would be different without electricity—no electricity means no cell phone, computer, air conditioning, and refrigerators.

Then students analyzed the positive and negative ways technology has impacted our values and lifestyle. Students made good observations, including that technology has encouraged them to pursue comfort and leisure at the expense of relationships. Next, students studied Bible passages on contentment (I Timothy 6:6-10), possessions (Proverbs 23:4-5), selfishness (James 2:1-7, 15-16; 4:1-3; 5:1-6), and Moses giving up wealth (Hebrews 11:24-25).

Following the Bible study, students selected a presentation topic, such as a toaster, a hydroelectric power station, and a blood sugar tester. Students researched their topics, made presentation outlines and visual aids, saw a model presentation, and practiced giving their speech to a classmate, who gave feedback about how easy it was to understand the science content.

What did you learn from teaching your unit?

David: Just because students have done presentations in other classes doesn’t mean that they don’t need my help to put their presentations together—what a thesis statement in science looks like and what a useful visual aid in a science presentation looks like. Also, 8th graders doing “independent” research really do need teacher guidance.

Given their developmental level, I need to use a lot of concrete examples to illustrate each Biblical principle. Even after doing a Bible study in which they connected course content and Biblical principles, students still show a preference for doing object lessons. For example, when doing a presentation on light bulbs, one student said we are to be the light of the world—instead of commenting on how light bulbs have positively and negatively impacted his life, in light of Biblical principles.

What modifications will you make to your unit?

David: I had students connect course content and Biblical principles about 3 times during the unit—in large chunks. Students need more repetition—maybe 8-9 opportunities to connect course content and Biblical principles. So, I think next time I’ll have students make connections after each topic of study.