

Need More (on) Energy?

Welcome back to the new school year and the CRSEP science inquiries by e-mail. What's up for this semester? Here's an outline of our plan...

"My goal is simple. It is complete understanding of the universe, why it is as it is and why it exists as all." — *Stephen Hawking*.¹

Well, perhaps that overstates our goals a bit, but we do intend to explore a topic that, next to systems, is arguably the most pervasive topic in science: **energy**. What do we mean by **energy**? Let's review. Two definitions that we used last year² were:

Energy is the ability to do **work**.

Work is done when:

- A ***force*** is applied on an object, *and*
- The object moves in the direction of the ***force***, *and*
- The ***force*** and motion occur simultaneously.

Last fall, using these definitions, we looked at some basic **energy** concepts³:

- Scientific definition of work
- Kinds of energy (kinetic and potential)
- Source of energy (sun)
- Energy conversion

This semester, we're going to take these basic concepts and examine the importance of **energy** within some science units:

- Ecosystems
- Simple machines
- Weather

Why these topics? Several reasons:

1. They are commonly taught.
2. They are important within the NYS core curricula.
3. There is lots of room for misunderstandings and misinformation within these units.

Next week we begin a series on energy in ecosystems. While waiting for the next e-mail, we ask you to think about what your students know about **ecosystems**:

1. What would they identify as parts of an **ecosystem**?
2. How would they define **ecosystem**?
3. What might they give as examples of **ecosystems**?
4. Is there anything about their understanding of **ecosystems** that you'd like to change or develop further?

Coming up

In the upcoming **energy** and **ecosystems** series, we're going to look at sample assessment items, the content that students need to know to address the items, and the challenges that students (and sometimes adults) face when applying this content. We hope you'll have enough **energy** to join us this semester...

¹<http://www.gdargaud.net/Humor/QuotesScience.html>

² Energy Part I: Work, 10/01/03, <http://crsep.org/ScienceInquiriesbyEmail.htm>

³<http://crsep.org/ScienceInquiriesbyEmail.htm>