



Instructor: Melody Go (2003 Science Teacher workshop participant)

School District: Ridgefield Park

Lesson Title: What is Nuclear Energy?

Grade: 8

Subject: Science

Overview: You are an author trying to increase the popularity of your children's reference book series. To do this your publisher has indicated that there are entirely too few science books written specifically for children on the topic of nuclear energy. Your publisher wants you and your writer friends to write a series of books on nuclear energy that will include all of the basic information about nuclear energy while making the elements appeal to a younger audience.

Objectives:

1. Students will write a series of books on nuclear energy that will include its relevant information while making nuclear energy appeal to a younger audience.
2. Students will expand their vocabulary of nuclear energy or a similar topic.
3. Students will practice their research and writing skills, as well as their public speaking.

Materials and Resources:

- Textbook
- Construction paper
- Glue
- Scissors
- Crayons
- Markers
- Stapler
- Internet access



Process:

Write a children’s book appropriate for a third or fourth grade child on the topic of nuclear energy or a similar topic that you are assigned.

1. The format of your book should include:
 - Cover: the book’s cover should have the name of topic, your name and class.
 - Table of Contents: one or two pages long and listing the interesting things you’ve put in your book.
 - Basic Information: Mention- nuclear energy, atom, energy or any other relevant information (5 or more pages).
 - Also include- Pictures and pages numbered.
2. Make a list of everything you need to know about your topic. Use the checklist as you construct your book.
3. Points will be taken off for missed information.
4. Take a look at the grading rubric that is included so you have an idea of what you should include in your checklist.
5. Be creative! Maybe you’d like to include a poem, rhyme or song using key words.
6. You will present your book on the date due. So practice at home.

ADVICE:

Be sure your project is:

- **Accurate:** Now is not the time to make up things! Creativity is appreciated, but you will lose points supplying incorrect information in an attempt at levity.
- **Neatly done:** It doesn’t need to be done on the computer, but hand written books need to be written neatly with clear printing. White out is a bad thing. If you make a mistake on a page, start over!
- **Correctly spelled:** One point will be deducted per misspelled word. If you are not sure about the spelling, look it up, or use spell check.
- **Done to specifications:** The finished size should be at least 8.5” X 11”, this is the size of standard paper.
- **Colorful:** But not too distracting.
- **On time:** There will be a full letter grade taken off each day late.

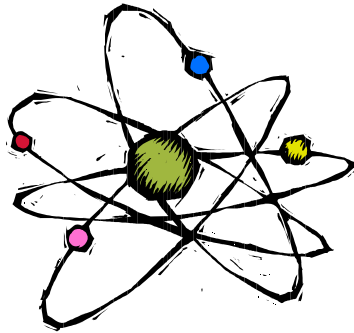
EVALUATION:

Check off here	Points	Topic in your book
	5	Name of your topic on your cover.
	5	Your name on the cover.
	5	Your class and class period on the cover.
	5	Table of content.
	5	Relevant information: mentioned- <i>nuclear energy, atom, energy.</i>
	5	At least 5 pages.
	5	Pictures.
	5	Pages numbered.
	5	Accurate.
	5	Neat.
	5	Correct spelling.
	5	Correct size paper- 8.5” X 11”.
	5	Colorful.
	5	On time.

	30	Presentation.
		Total Points / Grade

Student Name: _____

Period: _____



Teacher's Example of a Book:

WHAT IS NUCLEAR ENERGY?



BY:
MELODY GO
HONORS SCIENCE 8
JULY 16, 2003



Table of Contents

<u>Page</u>	<u>Topic</u>
2	Nuclear Energy
3	Fission
4	Process
5,6	Nuclear Reactors
7,8	Radiation



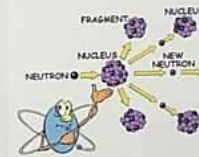
Nuclear energy is a way to make heat by fission of atoms.

A nuclear power plant then changes the heat into electricity.

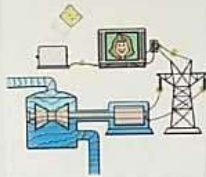


The main difference between a nuclear power plant and other kinds of power plants (coal, oil, gas) is that at a nuclear power plant, the heat used to make the steam is produced by fissioning atoms.

Fission is the splitting of atoms into smaller pieces, caused by neutrons hitting each other. These smaller pieces hit other atoms, releasing energy.



When uranium - a nuclear material - is used as fuel in a nuclear power plant, fission creates heat, which boils the water, creating steam. The steam turns a turbine which is connected to a generator.



As the turbine spins, the generator turns, and its magnetic field produces electricity. The electricity can then be carried to your home, so you can do your homework on your computer or watch tv.

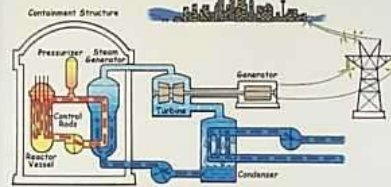


4

NUCLEAR REACTORS

There are Two Types of Reactors in the United States

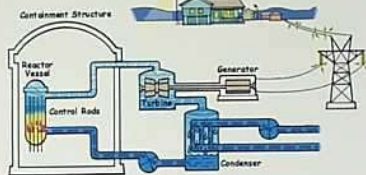
The Pressurized Water Reactor (PWR)



The Pressurized Water Reactor keep water under pressure so that it heats, but it does not boil! Water from the reactor and the water in the steam generator that is turned into steam never mix. This way, most of the radioactivity stays in the reactor area.

5

And The Boiling Water Reactor (BWR)



The Boiling Water Reactor actually boil the water. In both types, water is changed to steam, and then recycled back into water by the condenser, to be used again in the heat process.

6

RADIATION

In Reactors, Radiation is Trapped and Contained in Several Ways:

Inside small ceramic pellets encased in long metal rods.



Small amounts of radioactivity can be released into the environment, but only under controlled conditions.

7



*EVERYONE LIVED
HAPPILY EVER AFTER..*

THE END

