



THE SUN:  
THE ONLY STAR IN OUR SOLAR SYSTEM




RULES OF ENERGY

- Why do you eat food?



- Why do you put gas in your car?

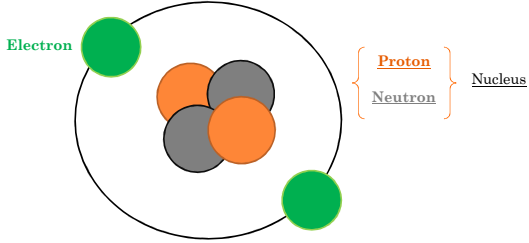


WHAT YOU PUT IN YOU GET OUT!

- Law of Conservation of Energy:
  - The total amount of energy remains constant in an isolated system

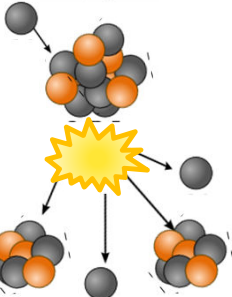
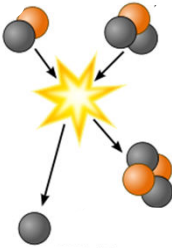
THE ATOM

- Background Information: Introducing the Atom!



FISSION OR FUSION?

- Nuclear Energy holds the nucleus together
- Two ways to release the energy: fusion (combine) or fission (separate)

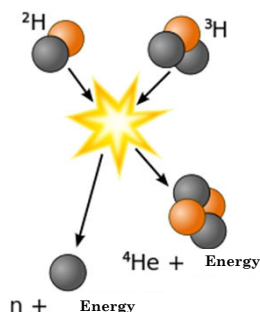



TODAY'S MAIN IDEA

- A star's primary source of energy is **nuclear fusion** which is combining two lightweight nuclei into a heavier nucleus.

### FUSION IN THE SUN

- Inside the sun, hydrogen atoms are combined to make helium.
- During the process, energy is released as heat and light.



### ACTIVITY – MARSHMALLOW MASH

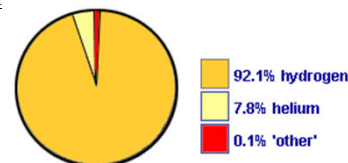
- How does our marshmallow mash experiment illustrate nuclear fusion?

### WHAT IS A STAR?

- <http://www.youtube.com/watch?v=5az0W4Y1nuU>
- Star = A massive, self-luminous or glowing ball of gas.
- Review: Where did all of the hydrogen and helium gas come from?

### COMPOSITION OF THE SUN

- 92.1% Hydrogen
- 7.8 % Helium
- 0.1% Other



- Why is it good for us that the sun is mainly composed of hydrogen and not helium?
- The sun has already used up about half of its hydrogen fuel. It has enough left for another 5 billion years.

### EXPLORE HW QUESTION

**2. Explore today's main idea with this question:**  
How long does it take for energy produced in the core of the Sun to reach its surface?

Helpful Textbook Pages: 809 - 812

### VOCABULARY FOR NEXT TIME

- Electromagnetic Spectrum

Helpful Textbook Pages: Glossary

### REVIEW & YOUR EXPLANATION

- <https://www.youtube.com/watch?v=pusKIK1L5To&feature=youtu.be>
- With your partner, write out an example of the process of nuclear fusion in your own words.
- Provide an accompanying sketch on your whiteboards