Name:_____Period:_____Date:_____EN___

STEAM ENGINES

Purpose:

- build a working steam engine
- identify the different types of energy associated with your steam engine
- describe all of the different energy transformations.

Materials:

- Soda Can
- String
- Ring Clamp
- Duct Tape
- Masking Tape
- Paper Clip
- Thumb Tack
- Bunsen Burner
- Goggles

Diagram: Draw a sketch of one of the steam engines in the classroom. Pay attention to details (where strings are attached, location of any holes in the can, etc). Add notes as necessary to make sure you identify important part of the design.

Build your steam engine with your partner, when you have finished, call me over to give it a once over then put your goggles on and test it out!!

Notes on assembling the steam engine:

- pay close attention to where the holes should be.
- don't forget to put a bit of water in the can before you seal it up with tape
- don't put tape too far down the can.

Observations: You should make observations of your steam engine as it works or fails to work. If it isn't working quite right your observations will help your identify the point or points of failure!

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Make a list of all the types of energy present in a working steam engine; you should be able to come up with a minimum of 6 different examples:
Ex. Kinetic Energy of the light emitted by the flame

1._____

2._____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

Make a list of all the types of energy transfers present in working steam engine, you should be able to come up with a minimum of 3 more examples:
Ex. Kinetic energy of the spinning can is converted into gravitation potential energy of the rising paper clip.

1. _____

2. _____

3. _____

4. _____

5. _____

Conclusion Questions:

1. Is the First Law of Thermodynamics being obeyed in the steam engine system? Explain your answer.

_____

_____

_____

_____

2. Is the Second Law of Thermodynamics being obeyed in the steam engine system? Explain your answer and include a discussion of waste heat.

_____

_____

_____

_____

Evaluation of your steam engine:

1. If your steam engine failed to lift the paper clip explain what they major flaw/s were in your design.

_____

2. If your steam engine was successful please identify anything you could have done to make it work even more effectively (including changes in my design).