

A CHRISTMAS CAROL

Law of Conservation of Mass

Grade Level(s): 6-9

Florida Standard: SC.8.P.9.1

Duration: 30-40 minutes

Activity: Students will learn about the Law of Conservation of Mass and the transfer of energy.

Vocabulary: Law of Conservation of Mass, Law of Conservation of Energy; energy transfer, energy transformation

Objectives: Recognize that mass and energy cannot be created or destroyed, only transferred or transformed.

Materials: Smartboard, student investigation worksheet.

Procedure:

1. Pass out the student investigation worksheet.
2. Watch the BrainPOP "Conservation of Mass" video (3:13) as an introduction to the lesson.
<https://www.brainpop.com/science/matterandchemistry/conservationofmass/movie>
3. Working individually or in small groups, have the students complete the worksheet.
4. When the worksheet is completed, there are informative BrainPOP games about the energy and matter underneath the video.

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The difference between the haves and the have nots in Dickensian England was immense. The poor often struggled to find enough food to feed their families. We need the potential energy stored in food masses to use as growth for our bodies and the kinetic energy of motion. One reason for Tiny Tim's ill health was a lack of food. Hopefully, the turkey at the end of the story was a good start to get him back to fitness. The mass of the turkey does not just disappear. It is transformed into energy. In fact, neither mass or energy can be created or destroyed, only transferred or transformed. The energy within the mass of the turkey, therefore, goes on forever.

Sequencing: Put the sequence of events in order from one to five



- ☐ Tim eats the turkey.
- ☐ The turkey eats grains that make it nice and fat, storing lots of potential energy.
- ☐ Tim converts his stored potential energy into fitness and motion.
- ☐ Tim's digestive system turns the turkey into stored potential energy within his body.

True or False:



- ☐ The energy within coal disappears when it is burned.
- ☐ The kinetic energy in the turkey is transformed when it is eaten.
- ☐ The more the turkey eats, the more potential energy is stored in its body.
- ☐ The gas in the street lanterns stores kinetic energy.

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Fill in the Blanks: Use the following terms:

Transformed

Kinetic

Transferred

Created

Potential

Mass cannot be _____ or destroyed. The mass within matter has _____ energy. This energy can be _____ into other forms of energy, or _____ into another form of the same kind. An example of energy transformation is when potential energy (Tim's full belly after eating the turkey) is transformed into _____ energy when Tim gets up and walks the streets of London.