

Science Lessons for Grades K-5

“Matter Tic-Tac-Toe Menu”

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Discipline: Matter

Grade: 3 to 5

Standards

- PS-3 Describe objects by the properties of the materials from which they are made and that these properties can be used to separate or sort a group of objects.
- PS-4 Explain that matter has different states (e.g., solid, liquid and gas) and that each state has distinct physical properties.

Purpose/Goal

Understanding matter and its properties.

Context

You should have already covered matter and its properties; this is a culminating activity for the end of Ch. 5 in the 4th grade Ohio science book. Remind students that this is a question/knowledge based assignment. Any projects they create must be focused around facts and important vocabulary.

Preparation

Paper, poster board, index cards, markers, etc.

Matter Menu Sheet

Book - Westphal, L.E., Differentiating Instruction with Menus: Science, 2007.

Website

None

Motivation/Description

Discuss the dry bones of the lesson, and leave the rest up for exploration with this activity.

- 1) Pass out the sheets below, one to every student.
- 2) Instruct the students that they must do three activities (three in a row).
- 3) They must okay their ideas with you: (This will help them stay on track!)
 - a. Before they begin
 - b. After the end of the 1st working day
 - c. After the end of the 2nd working day
- 4) Have students present their materials to the class.

This takes about 3 full days, although you may need to allow more time depending on how your class works. When the students are presenting their lessons, questions should be asked by the class or the teacher to reinforce that they understood the concepts they were covering. Make sure they completely read and follow instructions for each step they choose to do. The rubrics for each activity are listed at the beginning of the reference text and at the end of the handout.

This should be in a different layout than shown below. Presenter could not upload file into database. Copies will be provided at the conference.

Matter Tic-Tac-Toe

Due Date for Projects: _____

- Create a Collage

Think about all of the different states of matter you see in an average day. Create a collage with at least 6 pictures of each state of matter. Label each picture with its state.

- Create a Cartoon

Think about the properties of gases. Create a cartoon about a super hero with gas-like properties and his adventures on a very busy day. You must have at least 9 frames.

- Conduction

Develop an instrument that can test if an object is a conductor or an insulator. Test 10 household objects. Record your findings in a lab report format.

- Temperature

Temperature affects the particles of a substance. Create a model that can show what happens to a substance's particles as it heats from a solid to a liquid and finally to a gas.

- "Free Choice"

Select an option from the opposite side of this sheet.

- Write a Story

Matter changes constantly on Earth. Write a story about a liquid that always wanted to be a solid. Discuss his or her journey and how this goal was reached. The story must be 1 ½ pages long. Times New Roman 12pt. font. Double spaced. With 1 inch margins.

- Conduct an Interview

Conduct a make-believe interview with a gas. What would you like to know? Write the questions, as well as the responses you might hear during the interview. You must have at least 10 questions.

- Density

Choose 5 objects from your classroom. Make a data table to record the mass and volume of each object. Calculate the objects' density. Rank the items from least to most dense.

- Buoyancy

Design an experiment that will test the buoyancy of 10 household objects. Conduct an experiment and record all of the information in a lab report format.

"Free Choice" Options:

- Model of Conduction

Research what property of conductors allows electricity to pass through them. Create a model to show this property and what happens as electricity passes through the conductors.

- Mass How-To Poster

Make a poster that shows how to correctly use a balance. Show how to measure a common item as an example.

- Temperature Monitor

Select 4 locations in the school to monitor the temperature for 1 week. Compare the results and draw conclusions about the temperature differences between locations and between days. Write your results in paragraph form.

- How-To Read a Thermometer Worksheet

Include at least 2 temperature scales (K, °C, °F...) with 5 questions. Give the worksheet to the class to fill out.

- Matter Mobile

Create a mobile with the 3 states of matter, their definitions and examples. You should have 9 total squares.

- Matter Puppet Theater

Design puppets for a soap opera starring the 3 states of matter. Be creative in naming the soap opera, the puppets and designing the puppets. Also come up with a 3 minute skit to perform.

- Collage of Mixtures and Compounds

Collect 10 pictures of mixtures and compounds in our daily lives. Label each in the collage.

- "What Is It?" Demonstration

Bring in 3 compounds, 3 mixtures and 3 solutions from home to share with the class.

Assessment

Matter Tic-Tac-Toe Rubric

For each of the 3 projects you choose:

4 pts – Completion (on time)

4 pts – Accuracy (facts are correct, no copying)

4 pts – Quality (neatness, creativity when needed)