Britannica Lesson Plan: What Really Matters

Subject: **Science** (English)

Date:

Length of Session:
2 days at 45 minutes each

Prior Learning: Students should not need any prior knowledge to participate in this activity.

Learning Objective: Students will recognise the properties of matter and how matter changes in two days of activities.

Success Criteria: Students should be able to participate in meaningful discussion and do well within the Britannica Learning Game

Curriculum standards:

Resources: Interactive whiteboard or computer, projector and blackboard; student science notebooks; pencils; small clear cups with lids; water; ice cubes, thermos of hot water

Vocabulary:
Matter
Phase
Solid
Liquid
Gas
Atom
Evaporation
Condensation
Melting
Freezing

Organisation: This lesson will include both individual and group activities – you may need to rearrange the desks so that groups of students can sit together.

Support Staff Activities:
Support staff should help students with their understanding of the Britannica articles and related definitions.

Britannica School resources/links:
Matter article: http://school.eb.co.uk/levels/foundation/article/353444
States of matter image: http://school.eb.co.uk/levels/foundation/article/110302/media?assemblyId=89364
Evaporation and condensation article: http://school.eb.co.uk/levels/foundation/article/440357
Atom article: http://school.eb.co.uk/levels/foundation/article/439738
Phase changes of matter: http://school.eb.co.uk/levels/foundation/article/110302/media?assemblyId=156647

View this lesson plan in Britannica School here:
http://school.eb.co.uk/levels/foundation/lessons/view/1731

Time:	Teacher's Activity:	Students' Activities:
Day 1		
10 minutes	Place three cups in the centre of each table. Put an ice cube in one cup, some tap water in the second cup and some hot water in the third cup. After students have written their observations and discussed, place a lid over each of the hot water cups.	Students should observe what is in each cup and record what they see in their science notebooks. They should also speak to others at their table and come up with a list of key words. A representative from each table should share these key words, which can be written on the board.
20 minutes	Display the "Matter" article from Britannica Foundation level using an interactive whiteboard or computer with projector. Use the read aloud and double-click dictionary to help with comprehension.	Students could volunteer to read the paragraphs in the article and could lead discussions on key points within the article.
10 minutes	Students should observe the cups again. Remove the lids from the hot water cups to allow them to observe what it happening.	Students should again write down what they see in their science notebooks. They should focus on facts (not guesses) and should also discuss at the table any changes they may notice.
5 minutes	Write student suggestions on the board.	Students should suggest examples of solids, liquids and gases as a round-up activity. Depending on the number of tables, each group could focus on a particular state of matter.
Day 2		
10 minutes	Lead a discussion (or pose questions to students) about the matter article.	Review information about matter from their notebooks and the Britannica article.
30 minutes	Divide the students into differentiated small groups, with each group located near a classroom computer.	SEN students should look at the "Ice: States of Matter" illustration and discuss it. They should write a paragraph in their notebook to explain what is happening in the illustration. Have this group then go to the Learning Games activity "Solid, Liquid or Gas?" and play the game at level 1. On-level students should read and discuss the "Evaporation and Condensation" article from the Britannica Foundation level. They should write a paragraph summary of the article. Have this group go to the Learning Games activity "Solid, Liquid or Gas?" and play the game at level 2. Advanced students should read and discuss the "Atom" article. Have this group also study the "Phase Changes of Matter" illustration and write a paragraph to explain what is taking place in the illustration. Have this group go to the Learning Games activity "Solid, Liquid or Gas?" and play the game at level 3.
5 minutes	Have students participate in the plenary activity below.	Participate in the plenary activity below.

Plenary: Students should look through the list of related "things" and choose one solid, liquid or gas to learn more about. They should take notes on the selected matter to share with the class or put up on a bulletin board (they could use art supplies at home to make this more interesting for the board).

Differentiation: Suggestions for differentiation are given within the step-by-step procedures. Adapt them as needed.

Extension Activity: Students could design their own "level" for the "Solid, Liquid or Gas?" game, filling out the logs with suggestions and highlight which logs the man will need to jump on in order to successfully make it across.

Assessment Opportunities: Students' participation in discussion, written notes and paragraphs and success in the game will show how well they understood the concepts. Their completion of the plenary task could also be marked for formative or summative assessment.