

 	Middle & High School	 	
	Peterbrooke Chocolatier		
	Create Your Own Chocolate Teacher Lesson Plan		
Created by the Florida Advanced Technological Education Center of Excellence (FLATE) www.fl-ate.org ▪ www.madeinflorida.org			

NATURE OF LESSON:		GRADE LEVELS
Students are challenged to understand general properties of melting points and emulsions.		6-8/9-12
TARGETED SUBJECT AREA/S		MANUFACTURING LEVEL
Science, Chemistry, Math, Technology Education		Design, Fabrication, Testing
LEARNING OBJECTIVES – The Students Will....		TIME FRAME
<ol style="list-style-type: none"> 1. Learn how to measure temperature 2. Understand melting point and emulsions 3. Develop an understanding of the role of R&D and experimentation in problem solving 4. Develop abilities to assess the impact of products 5. Apply the design process 		4 Class Sessions
Standards Addressed		
ITEEA: http://www.iteea.org/TAA/PDFs/xstnd.pdf		
NGSSS: http://www.fldoe.org/bii/curriculum/SSS/		
MATERIALS		
Stove or microwave oven, pot for water bath, heat safe glass bowl, spoon (for stirring), aluminum plate or mold for chocolate, refrigerator.		
Emulsion: ½ cup chopped cocoa butter or margarine, ½ cup coconut oil, ½ cup raw coco powder, ½ cup brown sugar, ¼ teaspoon sea salt, ½ teaspoon vanilla.		
KEY TERMS		
Change of state, melting point, temperature, melting, emulsions		
DESCRIPTION OF ACTIVITY		
Est. Time	Description of Teacher Action	Notes
1 class session	Review emulsion principles and review theory. See teachers reference material provided.	Use your standard science curriculum and review teacher reference sheet provided for this lesson
1 class session	Watch the chocolate lesson video provided by FLATE. Hand out students the student worksheet. Review the design challenge and requirements with the students. Have students complete part A. Make sure students take notes when mixing ingredients. Explain part B to the students. Once the students are done with part B, have them complete part C.	Prepare copies of the student learning challenge worksheet. Make sure all materials are ready to be used to complete the activity.

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EVALUATION AND DISCUSSION:

See example of grading rubric provided.

EXTENSIONS & ADDITIONAL RESOURCES

We recommend the following websites to explore melting point, temperature, emulsions and how chocolate is made. These sites are useful and can be applied at any point(s) during this lesson.

1. Video of how chocolate is made: <http://www.youtube.com/watch?v=fiMjr3Rwdjs>
2. Hersheys Web Site: www.hersheys.com/ads-and-videos/how-we-make-chocolate.aspx
3. Cooking activities <http://www.kids-cooking-activities.com/how-is-chocolate-made.html>
4. Made in Florida: <http://www.madeinflorida.org>
5. Virtual Tours: http://www.madeinflorida.org/virtual_tours.htm
6. Lesson Plans: <http://flate.pbwiki.com>
7. Educational Pathways: <http://www.madeinflorida.org/Pathways.htm>