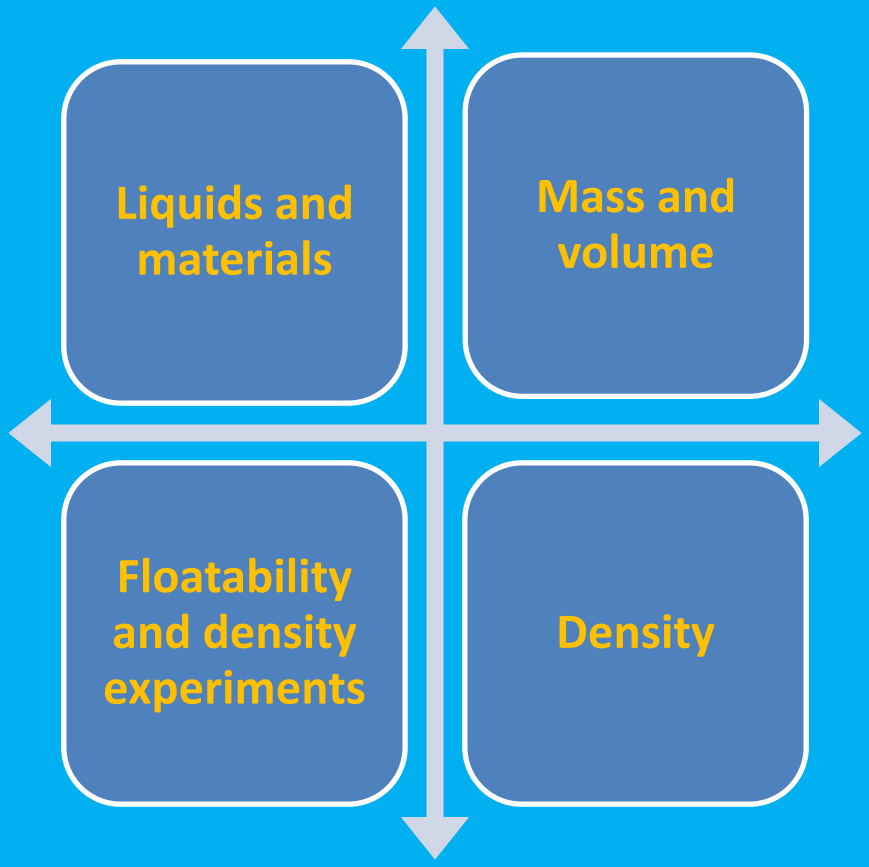
DENSITY PROJECT

Natural Science

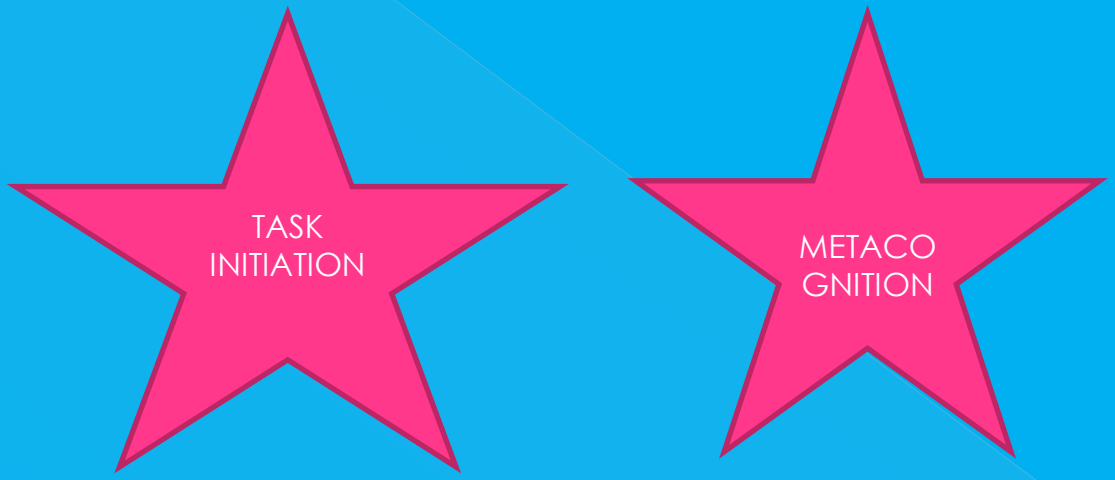
Year 6

A need to know



Let´s investigate and manipulate with matter!

EXECUTIVE FUNCTION SKILLS



CALP

- Matter
- Objects
- Mass
- Volume
- Density
- Floatability
- Sink
- Solid
- Liquid
- Measure
- Physical Phenomena

ADVANCE ORGANIZER

https://youtu.be/9xoqXVjBEF8

DRIVING QUESTION

Why do things float or sink?

Introduction to the project:Exemplars

https://www.youtube.com/watch?v=4MHn9Q5NtdY

HOTS

- **Analyze and compare** the different experiments, focusing on the materials needed and the process of the experiments
- **Think about and consider** if these experiments are useful and practical in our daily lives and if you can apply some of them at home.
- **Write down a list** of the materials you would need for an experiment, the time,the place you can do it, if you would need the help of your parents and also the process you will have to carry out.

TASK- BASED LEARNING

- **Presentation**:By teacher on experiments using specific vocabulary. Showing them a checklist with the vocabulary they should use.
- **Practice:**Task-based Instruction:Ss bring to the class different materials and they test their texture, colour, durability, size…

  Task-based Instruction:Ss investigate how the matter changes state. From solid to liquid, from liquid to gas.They search the Internet.Videos.

  Task-based Instruction:Ss practice some easy and quick experiments
- **Performance:** Ss present their experiments to the other groups

Teaching Sequence

- **Session 1**: Advance Organizer (15 min) and introduce first section of unit:

  Materials and properties. **Cooperative Learning- Think Pair Share during advance organizer**

  INQUIRY: What types of materials can we find? And what are the main properties of the materials?
- **Session 2**: Matter and the three states of matter

  INQUIRY: Can you describe matter and its states?
- **Session 3**: Experiment of the changes of the state.

  Problem- Based Learning-What would happen if it is too hot in an ice rink and all the ice melts?What can you do to solve the problem?
- **Session 4**:Definitions of mass, volume and density

  INQUIRY:How can we relate mass, volume and density?

Teaching Sequence

- **Session 5**: Experiment with mass, volume.**Cooperative Learning- Round Robin. They predict their results of the experiment and pass the idea to the rest. They share their results before experiment.**
- **Session 6**: Definition of floatability. Relate density and floatability

  INQUIRY: In what sense are density and floatability related one to another?
- **Session 7**: Experiment with different densities and materials to learn about the floatability
- **Session 8**: Buoyancy

BENCHMARK AND CHECKLIST FOR DENSITY PROJECT

- **Task 1:** Identified the different materials they found in the classroom
- **Task 2:** Observed the changes of state of matter and knew how an ice cube changed from solid to liquid and from liquid to gas.
- **Task 3:** Knew how to calculate the mass of two different materials.
- **Task** 4:Was able to measure the volume of two different liquids
- **Task 5:** Was able to create a density tower with oil, water, honey and soap.

SCIENCE RUBRIC

Oyster-Adams Elementary Science Fair
PreK-2nd grade Rubric 2011

Criteria	None 0	Below expectations 2	Meets expectation 4	Exceeds Expectations 5	Total Score
Testable question	0	Problem lacks some clarity, is not testable or is not a question	Asks a specific measurable cause and effect question and shows clear purpose	The question shows higher thinking skills and exceeds expectations	
Hypothesis	0	Hypothesis does not state a clear prediction	Predicts a reasonable outcome as a result of a specific investigation	Exceeds expectations and accounts for different variables	
Procedure	0	Procedure is vague and would be difficult to repeat	Procedure is clear and could be easily repeated	Exceeds expectations- very precise and well thought out	
Data/ Observations	0	Data not clear or unlabelled	Data and/or observations presented clearly	Exceeds expectations Complex data presented in a highly organized fashion	