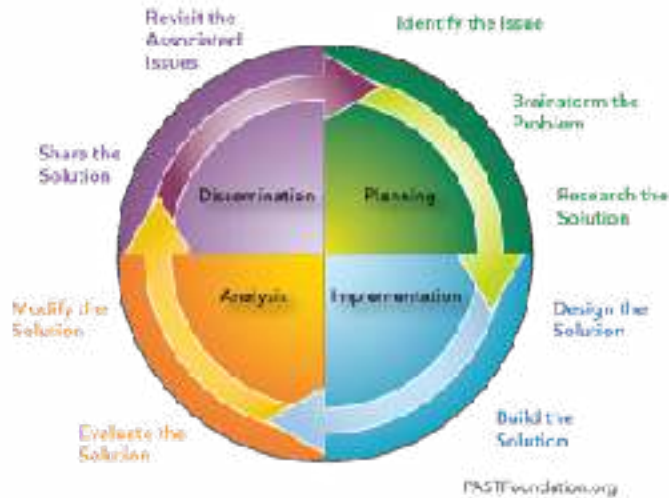


Neutral Buoyancy Mini Challenge



Problem Scenario: BOEM is interested in further developing their underwater monitoring program and they need your help designing the optimal ROV (remote operating vehicle) to collect vital environmental data at specific ocean depths. In order to accomplish this, the ROV must maintain neutral buoyancy for a targeted depth. This challenge will assist you in engineering an ROV by experimenting with neutral buoyancy.

Challenge: Create a design for a “plastic egg” to maintain neutral buoyancy for 10 seconds at the depth indicated on a container.

Criteria:

All objects must be inside the plastic egg.

- You will have 5 minutes to design and build your solution.

The plastic egg must maintain neutral buoyancy for 10 seconds at the depth indicated on the container.

- Document the total weight of your egg with each modification
- Identify how neutral buoyancy in an ROV is critical to an ROVs purpose.

1. Brainstorm: Use the space below to brainstorm the design and approach to maintaining neutral buoyancy.

Questions to consider:

- What is neutral buoyancy?
- How can we accomplish neutral buoyancy?
- What are the best materials to use to accomplish neutral buoyancy?

2. Design:

Materials:

Plastic Easter Eggs, Various Materials with Different Sizes, Masses, and Shapes, A Large Bowl or a Bathtub for Water, Towels, Water.

- Based upon your brainstorm and the materials available, list what materials will be used to fill the plastic egg.

4. Evaluate:

- Did your design result in the egg achieving neutral buoyancy for 10 seconds?

5. Modify:

- If you DID NOT achieve neutral buoyancy for 10 seconds, what modifications will/did you make?
- If you DID achieve neutral buoyancy for 10 seconds, what modifications will you make to achieve neutral buoyancy at a different depth?

3. Build:

Implement your design!

6. Share:

Share your creation on Social Media!

Tag us on Facebook, Twitter or Instagram

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Use the hashtag #ThisIsPAST or

#DesignThinking