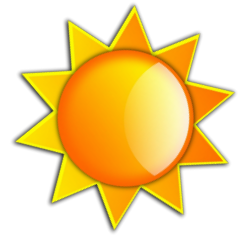


FRED THE WORM

Science and Engineering Practices

BACKGROUND



Fred has been spending his downtime boating in the Gulf of Mexico off Florida's coast. Although Fred enjoys boating, he's not the sharpest tool in the shed! (Brains of worms are pretty small...so it's not really his fault)! You would assume with all the boating Fred does that he would know how to swim or that he would wear a life vest, but he doesn't know how to swim & he did NOT put on his life vest before his departure.

well, the worst has happened! Fred's boat capsized, when he hit a wave head on and now he is stuck in the middle of the gulf and he needs YOUR HELP!

Fred is too scared to try and reach his life vest in fear that he may fall into the water and
drawn!





ASK:

WHAT'S THE PROBLEM?

MATERIALS:

- 1 Gummy worm (Fred)
- 1 Gummy Lifesaver (Life vest)
- 1 Plastic Cup (Boat)
- 2 Paper Clips



SETUP



The GOAL is to
get the life vest
AROUND Fred!

PROCEDURE

1. work with your partner to "Save Fred"
2. You MUST Follow the RULES:
 - a. You can't use your hands to touch anything but the paper clips.
 - b. Think about that when you get to planning (blueprint)
3. You will develop a plan before you begin!
4. Goal: To return Fred safely inside his boat with his life vest on!
5. YOU CANNOT STAB FRED WITH THE PAPERCLIPS!!

RESEARCH/IMAGINE

- Each partner needs to think of a way to solve this problem.
- Think...
 - How will you utilize your materials?
 - How will you ensure you fix the problem, while following all the rules?



PLAN/EXPLAIN

- Fill out the flowchart showing how you and your partner PLAN to save Fred.
- Be as descriptive as possible.
- Another scientist should be able to follow your exact steps by looking at the diagram and reading your "How To" Steps.
- Explain: Justify the "why" behind your plan.

PLAN/EXPLAIN

Name: _____ Partner's Name: _____ Period: _____ Date: _____

Science and Engineering Practices: Fred the worm

Plan/Explain

How do you PLAN to save Fred? Draw a diagram in the boxes. Below the boxes, provide a written explanation of your plan! BE DESCRIPTIVE!

Step One:	Step Two:	Step Three:	Step Four:

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

CREATE

- As you CREATE, you need to be reflecting on your plan.
- If you make revisions, be sure to revise and make notes within your plan page!



TEST

Name: _____ Partner's Name: _____ Period: _____ Date: _____

Science and Engineering Practices: Fred the worm

Plan/Explain

How do you PLAN to save Fred? Draw a diagram in the boxes. Below the boxes, provide a written explanation of your plan. BE DESCRIPTIVE!

Step One:	Step Two:	Step Three:	Step Four:

**FOLLOW YOUR
PLAN TO SAVE
FRED!**

TEST & EVALUATE

Name: _____ Partner's Name: _____ Period: _____

Science and Engineering Practices: **Plan-Explain**

How do you **PLAN** to save Fred? Draw a diagram in the boxes. Below the boxes, provide a written explanation of your plan. **BE DESCISIVE!**

Step One:	Step Two:	Step Three:	Step Four:

**DID YOUR PLAN
WORK THE WAY
YOU INTENDED
IT TO?**

IMPROVE & INNOVATE

Name: _____ Partner's Name: _____ Period: _____ Date: _____

Science and Engineering Practices: Fred the worm

Plan/Explain

How do you PLAN to save Fred? Draw a diagram in the boxes. Below the boxes, provide a written explanation of your plan. BE DESCRIPTIVE!

Step one:	Step Two:	Step Three:	Step Four:

WHAT WOULD YOU CHANGE IF YOU COULD DO THIS AGAIN?

SCIENCE AND ENGINEERING PRACTICES

- Be sure to fill out the MATRIX on the back of your plan.
- Decide what Science and Engineering Practices were used for this lab.
- REMEMBER:
 - Not ALL Science and Engineering Practices will be used for ONE lab/activity.
 - We will be introducing more of these throughout the school year!