

Argo Floats Video Answers

Friday 20 June

1. Building a Deep Argo - an Example of Technological Practice

The Deep Argo is a clever robot designed to do a very special job. On this voyage you are part of the process of evaluating a prototype Deep Argo. This is part of a technology process to produce a fully tested and working Deep Argo robot.

1. What was the **need** for a Deep Argo?
 - Answer: Scientists wanted to better understand the bottom of the oceans (and to get measurements of temperature and salt (salinity)).
2. What **functional outcomes** were required from the Deep Argo?
 - Answer: A float that can go down to the bottom of the ocean on its own, sit there for a while come back up while taking measurements of the water, transmit them to shore and find out where it is using GPS. The instruments have to measure temperature down to 1/1,000th of a degree Centigrade, and the saltiness down to 1 part per million.
3. What four decisions had to be made in the first stages of **planning**?
 - Answer:
 - i. the size
 - ii. how much energy is needed
 - iii. how long it needs to last
 - iv. how often you need to make measurements
4. During the **planning**, each stage was broken down into **steps**. Norge's company used a process to help with this planning. What was the name of that process?
 - Answer: Tollgate
5. What sort of **people and skills** are required for the Deep Argo project?
 - Answer: Engineers (electronics, mechanical), mathematicians, oceanographers, physicist, managers.
6. On this voyage you are seeing part of the **evaluation stage**. List some of the things the prototype will need to withstand to perform successfully?
 - Answer: salt water, waves, the plane ride, the vibration on the ship and everything!

Next step learning: Find out about other planning tools, systems and processes (such as Gantt charts) that help with technological practice.

2. *Prototype Deep Argos*

On this voyage you will see two prototype deep argos being deployed. The first deployment went very well. How will this one go? Nathalie talks you through the deployment, and explains the purpose of having two deep argos at this one location.

1. Which part of the deep argo has to be protected during deployment?
 - Answer: the antenna
2. Where was the engineer who was checking the signals from this deep argo float, and what was he checking for?
 - Answer: California – he was making sure the messages to the satellite are sent at the right frequency
3. Once Nathalie knew that the Argo was working perfectly what was the command that was sent to it?
 - Answer: dive to 150m
4. How long should this test dive take?
 - Answer: 2 hours
5. What were the goals for having two deep argo floats?
 - Answer: so scientists could compare temperature and salinity data

Next step learning: Once the first test dives are completed these prototype deep argos will move down to the ocean floor sending data to a satellite and on to Scripps Institute of Technology in California, when they surface. Make a list of **all** the smart technologies you can think of that allow deep argos to do this.