EDUCATOR'S GUIDE
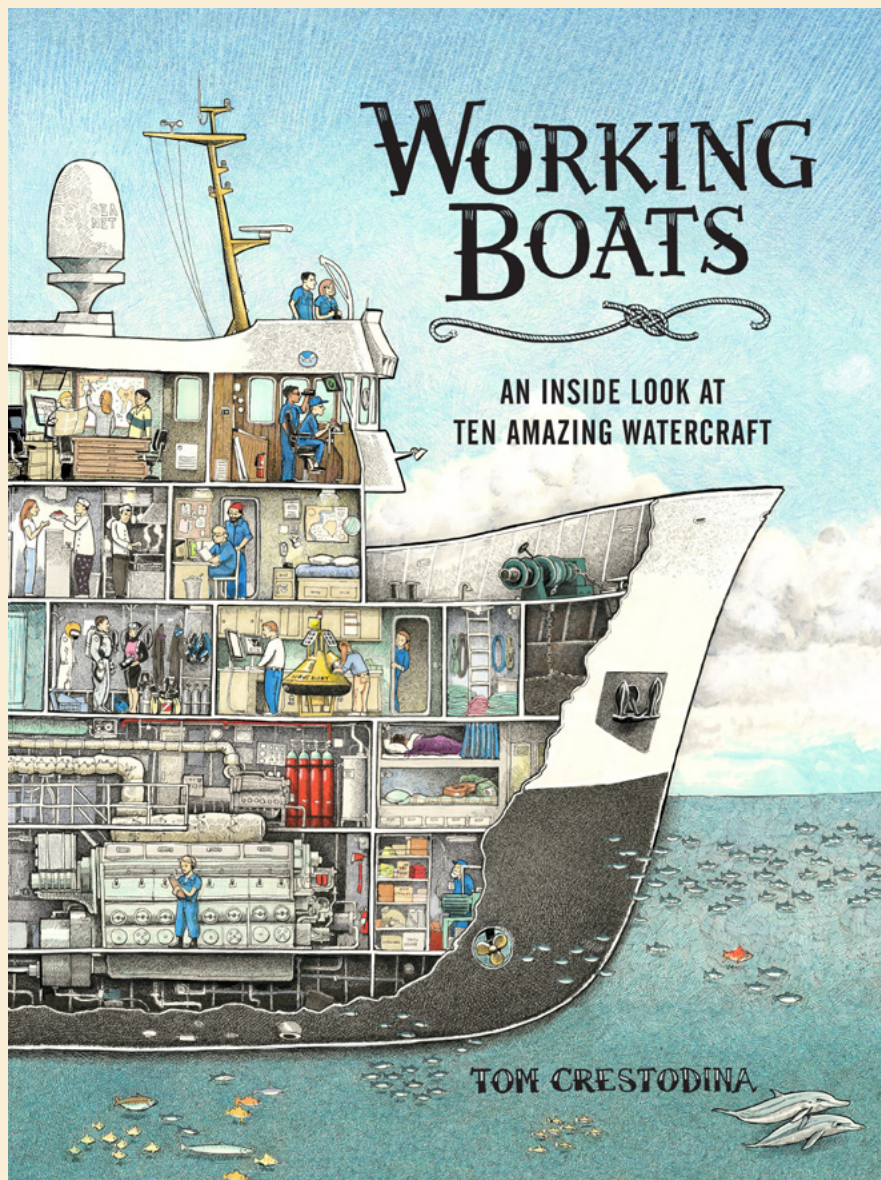

WORKING BOATS
An Inside Look at Ten Amazing Watercraft
Written and Illustrated by Tom Crestodina

GET MORE OUT OF THIS BOOK

GROUP DISCUSSION

While reading the captions and text, discuss how each boat solves a human problem such as hunger or fire. Create a table showing the type of boats, the human problem, and the jobs that each boat creates for people.

BOAT TYPE	HUMAN PROBLEM	JOBS ON THE BOAT

GROUP ACTIVITIES

Engineering Design Process

1. **Ask** a question.
2. **Imagine** an idea.
3. **Plan** a solution.
4. **Create** a prototype.
5. **Test** the prototype.
6. **Improve** the design.

Ask the questions:

1. "How could we build a simple boat using 1 sheet of aluminum foil?"
2. "How much weight could it hold?"
3. "Does the shape of a boat's hull determine how much weight it can hold?"

Tell the children to **imagine** a boat by thinking about the shape they see in the design.

Next, have the children make a **plan**. **Ask them to talk** about their ideas with someone first and then draw their design.

Pass out 1 sheet of aluminum foil to each team of two to **create** a boat prototype.

Have children use a common item, such as pennies, dried beans, plastic cubes, to test the cargo capacity of their boat. Once a unit of measure has been chosen, it is important to stay with the same one for all prototypes so a fair comparison can be made. Encourage children to keep track of their data in a data table as they test their prototype:

TRIAL #	SHAPE OF HULL	# OF PENNIES

Finally, ask teams to record any **improvements** they made to their prototype and to give their boat a name. Be sure to supply a new aluminum foil sheet for each prototype.

When children are satisfied with their testing and designs, have each team share their designs, pointing out which design was the most successful and why.

INDEPENDENT ACTIVITIES

Any of the following topics can be used in a persuasive or opinion writing assignment, interview, or open discussion with argumentation:

Consider the many ways humans connect with the natural world mentioned in this book. (for example, fishing, pollution, security, transportation) How have boats made our lives better?

Think about how weather, food sources, energy, and mobility on water all limit human activity. What are some solutions you have to these human problems in the future? How can you improve one of the boats?

Now consider the boundless discoveries people can make while learning more about our oceans. How do boats make all that possible?