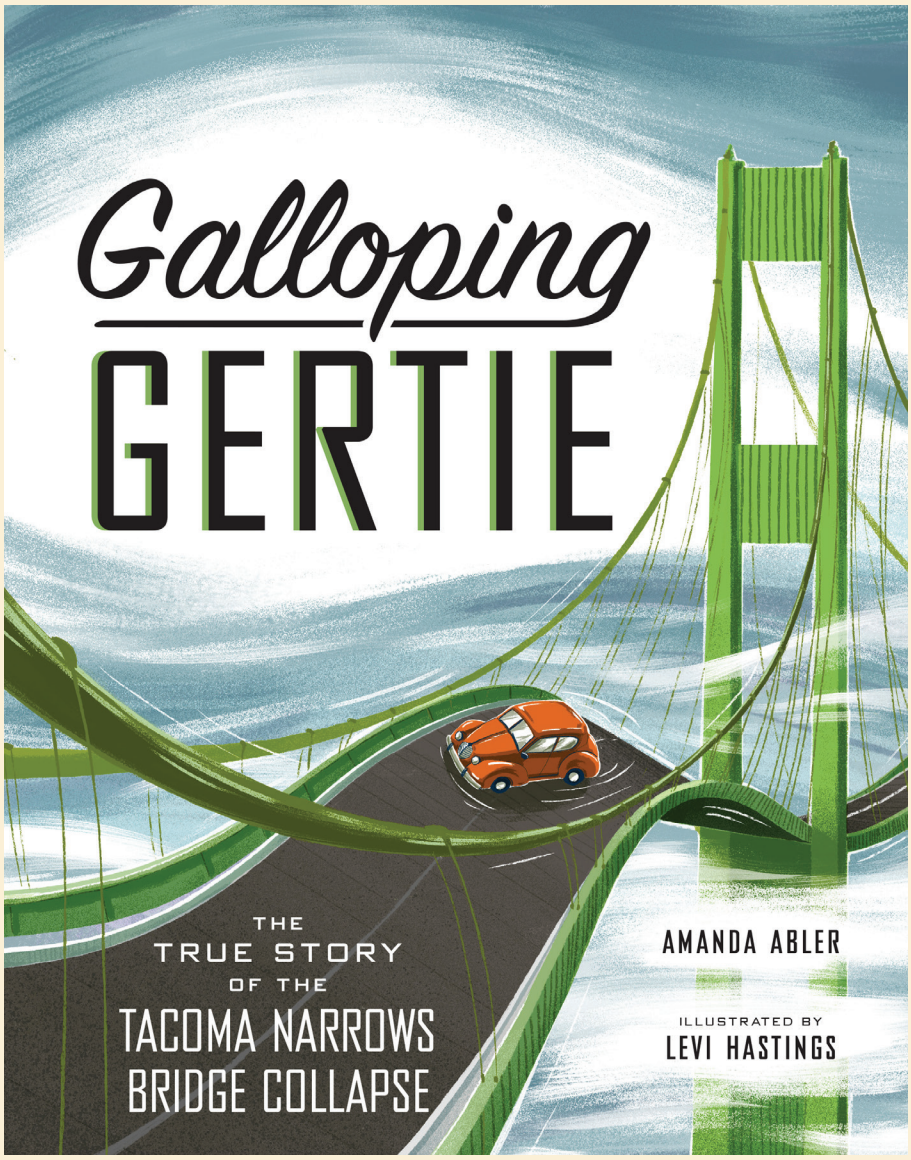
EDUCATOR'S GUIDE



GALLOPING GERTIE

The True Story of the Tacoma Narrows Bridge Collapse

Written by Amanda Abler; Illustrated by Levi Hastings

little bigfoot
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GET MORE OUT OF THIS BOOK

GROUP DISCUSSION

- After reading the book, discuss a common engineering design process that repeats over and over when people work to solve problems:

    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:

    "Where in the design process did the bridge literally break down?"

    "How does weather affect people? Is it always predictable? Why or why not?"

    "How could earthquakes affect bridges?"

    "Why is it important to make a prototype that is tested?"

    "How was the disaster turned into a positive event?"

GROUP ACTIVITIES

- **Ask** the question: "How can we build a bridge that would hold __ for __?" (For example: 12 pennies for 2 minutes or the most weight possible for 3 minutes.)
- Tell the children to **imagine** a bridge by thinking about the shapes they see in the design and the kinds of building materials used.
- Next, have the children make a **plan** by talking about their ideas with someone first and then drawing their design.
- Either pass out the same materials to each team or let teams choose a building material from a menu to **create** a prototype bridge:

    Toilet paper rolls

    Tin foil

    Pipe cleaners

    Popsicle sticks and rubber bands

    Index cards and tape

    Spaghetti noodles and small marshmallows

    Toothpicks and playdough

- Pass out timers to each group. Have them organize their team with roles such as: *recorder, timer, builder, consultant,* and *tester*.
- Encourage children to keep track of their data as they test their prototype by using a table:

Trial #	# of Pennies	Time Held

- Finally, ask teams to record any **improvements** they made to their prototype and give it a name:

INDEPENDENT ACTIVITIES

- Design a bridge that could hold some weight such as a toy car or small rock.

    1. Using a colored pencil, draw your bridge design on paper, labeling at least 3 parts.

    2. Build your bridge using building materials such as LEGOs, wooden blocks, or other linking toys.

    3. Test your bridge with the weight. Was it successful? Why or why not?

    4. Could your bridge hold more weight? How much can it hold before it breaks?

    5. Record any changes you make in your design with a different colored pencil on your drawing.

    6. Share your design and prototype with someone. Talk about changes you made, if any, and why you made them.