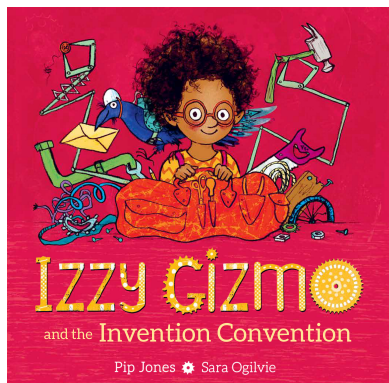


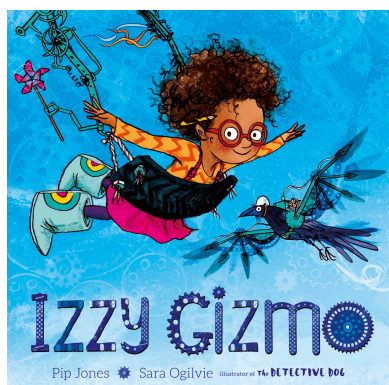
PEACHTREE
TEACHER'S GUIDE
Includes Common Core Standards Correlations



Izzy Gizmo and the Invention Convention

HC: 978-1-68263-164-5

Ages 4–8
Lexile • F&P • GRL M; Gr 2



Izzy Gizmo

HC: 978-1-68263-021-1

Ages 4–8
Lexile • F&P • GRL M; Gr 2

Written by Pip Jones | Illustrated by Sara Ogilvie

ABOUT THE BOOKS

Izzy Gizmo loves to invent and is always looking for things that need to be mended or fixed. But her magnificent contraptions don't always work the way they should. Whether it's helping a crow to fly, or creating an invention that will win first place, marvelous machines turn into total mayhem. She tries and tries again, and when it still doesn't go right, she gets frustrated and finds herself on the verge of giving up. But with an encouraging grandpa, a caring heart, and a whole lot of creativity and determination, maybe Izzy Gizmo can find a way to succeed after all.

Izzy Gizmo's wonderful exuberance and tenacity to try, try, and try again will inspire ambitious inventors and little engineers.

THEMES

Perseverance | Inventions | Quitting | STEM | STEAM

BEFORE YOU READ

- Explain this book is written in verse. Discuss end rhyme and have students give examples.
- Discuss what a gizmo is.
- What does an inventor do?
- Can you name any inventors and what they invented?
- What is an invention?
- What is the difference between an invention and a creation? Is creating a new cake recipe an invention or a creation?

DISCUSSION QUESTIONS

KNOWLEDGE AND COMPREHENSION

- Izzy is an inventor. Do you think being an inventor is easy or hard? Explain your answer.
- Izzy carried her tool bag everywhere. What kinds of items would you put in a tool bag?

- Izzy tweaks gadgets. What does this mean?
- Izzy was described as clever and bright. What does clever mean? Are all inventors clever?
- Izzy wants to quit. Why? Would you quit if you couldn't do something the first time?
- Can you think of an inventor who had many failures?
- Why do you think people become inventors? Would you still invent things if you didn't make any money off your invention? Explain your answer.
- What traits do inventors have? Do you have any of these traits?
- What does it mean to tinker? Do you think all inventors are tinkerers? Explain.
- Some inventors are innovators. An innovation is where an inventor makes an improvement on an existing invention. Can you think of any innovations to inventions? Are innovators as important as inventors? Explain.
- Izzy says the bird doesn't want to dig up worms, etc. Is this true? Look at the pictures. In each picture who is really digging up worms, etc.? If it were you who lost the use of an arm or leg would you have fun if everyone did things for you or would you rather figure out how to do them yourself? Explain your answer.
- In order to make the crow a new wing Izzy read books. She made a plan. Why is it important for Izzy to do some research before starting on the new wing? What topics would you look up when researching wings?
 - Check out the video "How birds fly" to learn about weight, lift, drag and thrust www.sciencelearn.org.nz/resources/303-how-birds-fly
 - Izzy's first wings were too heavy and her second pair had the crow flying upside down. Watch the video www.youtube.com/watch?v=FO4PBowlFg to learn why.
- In *Izzy Gizmo and the Invention Convention*, Izzy receives an invitation with an RSVP. What is an RSVP and why is it important to always reply to one?
- If Izzy wins the conventions competition, she will win a badge to the Genius Guild. Are all inventors geniuses? What is a guild? What other types of guilds are there?
- Abi von Lavish makes fun of Izzy's tool bag? Why?
- Izzy is trying to come up with something fancy to invent to win the competition when her Grandpa

says, "Great inventors produce machines which can really be put to good use." Is it more important to win or invent something useful? Why?

- What is intellectual property? What is a patent and why is it important to have one? Is it important to get the credit and benefits of your creation? Why or why not?
- Izzy gets angry with Fixer. Why does she lash out at him? Is she right in getting angry? What should she have done?

APPLICATION AND ANALYSIS

- Many inventors invent to solve a problem in the world, or their community. Others invent something by accident—more like a discovery. Which would be more satisfying and why?
- Izzy needs to solve the problem of the bird's broken wing. If a veterinarian told you he could not fix the wing would you try? Do you think you could solve a problem an adult could not? Why do you think Izzy tries? Would you?
- What do we learn from our attempts or failures?
- In order to make the wings Izzy took parts from working items that belonged to other people. She then had to go back and make it right. Was Izzy right in taking what was not hers? Where should Izzy have gotten her parts? Where do inventors get the parts they need? Brainstorm where you could find free or inexpensive parts.
- Izzy needed a cheerleader to keep going. Her grandfather filled this role for her. Do we need cheerleaders who root for us when we want to give up? Why? Who is your cheerleader and what has he/she done for you?
- In *Izzy Gizmo and the Invention Convention*, Izzy was not confident in her ability. Are most inventors? Why wasn't she?
- Izzy is not sure she wants to go to the invention convention because her inventions don't always work. Is this a valid concern? Are there inventors whose gadgets work 100% of the time? How many things must you invent to consider yourself an inventor?

EVALUATION AND SYNTHESIS

- The crow is heartbroken. How would you fix a broken heart in an animal?
- Izzy is trying to come up with something fancy to invent to win the competition when her Grandpa says, "Great inventors produce machines which can

really be put to good use.” Is it more important to win or invent something useful? Why?

- Would you rather invent something to meet a need or to help people have fun such as a game? Explain your answer.
- Izzy wants to earn a badge. Why is this important to her? Should it be? Explain your answer.
- Today a tool that helps inventors is the 3D printer. How has this new tool helped? Can you think of something you can use the 3D printer for to help someone?

CLASSROOM ACTIVITIES

LANGUAGE ARTS

- Thomas Alva Edison invented the light bulb. How many times did he fail before he found the right filament for the bulb? How would the world be different today without the light bulb? How would your life be different? What do we learn from our failures? After discussing these questions do the following writing exercise.
- Choose something you use every day and write in your journal how your life would be today without that invention. Examples: the invention of the printing press, the stove, refrigerator, computer, car, assembly line, can opener, etc.
- As a class, discuss the definitions of the following vocabulary words:
 - gizmo
 - research
 - clever
 - inventor
 - invention
 - guild

SCIENCE

- Using the Scientific Method Form provided at the end of this guide, fill in the steps showing how Izzy figured out how to fix the bird's wing. How many times did she have to complete the process? What did she learn from each failure that helped her find the solution?
- As a class brainstorm problems in your community or world. Break up into small groups. Each group should identify a problem and try to solve it with an invention. You can also improve on an existing invention.
- Collect broken electronics and as a class reverse engineer them by taking them apart to see how they

work. See if you can figure out what each piece does. Then see if you can put them together again. Use a clock, electric can opener, etc.

- Take pictures of machines being hauled on 18-wheelers. See if your class can figure out what the machines or pieces are for.
- Make a list of common items we use every day and see if you can come up with alternate uses for it.
- Check out this website for cool things the 3D printer has been used for. <https://all3dp.com/1/useful-cool-things-3d-print-ideas-3d-printer-projects-stuff/>

HISTORY

- Research the following inventions and see how the invention changed history. See if you can find out what motivated the inventors to invent them.
- Ironing board
- Potato chip
- Tater tots
- Light bulb
- Telephone
- Airplane
- Toothbrush
- Wheels for dogs
- 3D printer
- Check out these inventors:
 - Alexander Graham Bell
 - Sarah Boone
 - George Washington Carver
 - Thomas Alva Edison
 - Henry Ford
 - Benjamin Franklin
 - Temple Grandin
 - Johannes Gutenberg
 - Lonnie Johnson
 - Elijah McCoy
 - Garrett Morgan
 - Nikola Tesla
 - Leonardo da Vinci
 - Madame CJ Walker
 - Eli Whitney

WEBSITES

For more cool inventions and inventors check out the following websites:

Most important inventions of the 19th century:

www.thoughtco.com/inventions-nineteenth-century-4144740

Important innovations and inventions, past and present:

www.thoughtco.com/a-to-z-inventors-4140564

ABOUT THE AUTHOR

Pip Jones spent her childhood gobbling up books and dreaming about being an author. At nineteen, she began a career in journalism, and in 2014, she published her first book. Pip is most often found either writing, staring at the contents of the fridge, or herding her two children. She lives in London.

www.pipjones.net

ABOUT THE ILLUSTRATOR

Sara Ogilvie studied illustration and printmaking at Edinburgh College of Art. In addition to illustrating children's books, Sara exhibits across the UK and abroad and creates images for editorial, design, and advertising. She lives in Newcastle upon Tyne in the North of England.

www.saraogilvie.com

THE ACTIVITIES IN THIS GUIDE DIRECTLY ADDRESS THE FOLLOWING STANDARDS:

- CCSS.ELA-LITERACY.CCRA.R.1
- CCSS.ELA-LITERACY.CCRA.R.2
- CCSS.ELA-LITERACY.CCRA.R.3
- CCSS.ELA-LITERACY.CCRA.R.4
- CCSS.ELA-LITERACY.CCRA.R.5
- CCSS.ELA-LITERACY.CCRA.R.6
- CCSS.ELA-LITERACY.CCRA.R.9
- CCSS.ELA-LITERACY.CCRA.R.10
- CCSS.ELA-LITERACY.RL.3.1
- CCSS.ELA-LITERACY.RL.3.3
- CCSS.ELA-LITERACY.RL.3.4
- CCSS.ELA-LITERACY.RL.3.6
- CCSS.ELA-LITERACY.RL.3.7
- CCSS.ELA-LITERACY.RL.3.9
- CCSS.ELA-LITERACY.RL.3.10

Teacher's Guide
prepared by Gail Shipley

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Updated 9/24/19

SCIENTIFIC METHOD FORM

1. Observe
2. Question
3. Research
4. Hypothesize
5. Experiment
6. Test hypothesis
7. Draw conclusions