

Blue Lightning

By A.P. Raj



Sondra loved cars more than anything else. When she was a kid, she begged her dad to let her join the Boy Scouts, just so she could build a car to race in the Pinewood Derby. Her car was a jagged spike of pinewood painted a glittery, electric shade of blue. She named that car “Blue Lightning.”

Blue Lightning didn’t win the Pinewood Derby, but it did come in 2nd place. Sondra had been so proud, and her dad was proud of her, too. She had doodled drawings of Blue Lightning all over her notebooks. She sometimes dreamt that Blue Lightning became a real car sitting out in her driveway, and she would get in and take it out for a drive. Even though she was too young, and had never driven a car, in those dreams she always knew exactly what to do. Driving Blue Lightning made her feel powerful and free.

Then one lazy Saturday in spring, Sondra was flipping through a car magazine she liked, when an ad caught her eye:

AMATEUR GO-CART RACERS, START YOUR ENGINES!

Do you LOVE cars? Do you have a passion for racing? Build your very own go-cart and enter the Go-Go Derby! All experience levels welcome! Racers ages 13 and up may enter with parental supervision.

Sondra had just turned 13 that fall. She screamed with delight and immediately ran to her dad to beg him for permission to enter. She was ready to build Blue Lightning, Mark II.

Her dad read the magazine ad and frowned.

“I don’t know, Sondra,” he said. “Building a car for the Pinewood Derby was one thing, but a go-cart? That’s a whole new level. It sounds kind of dangerous.”

“Not if you help me!” she said.

“That’s true. It could be a fun project. And we’d both learn a lot,” he said.

“Exactly! So we can do it?” Sondra said.

“Well, I’ll ask your mother what she thinks. And I want to know that you’re serious about it. So how about this: you do some research into how we’re actually going to build this thing, and come back to me in a week with a design.”

Sondra jumped with joy. “You got it, Dad!” she said. She gave him a big hug and a kiss on the cheek, and went straight to her computer to start researching go-cart designs.

In a week, Sondra had a notebook full of drawings and notes about her project, from spending hours after school researching, thinking and planning. Blue Lightning, Mark II looked ready to go. Sondra’s design was a lot like the original Blue Lightning, except instead of pinewood, it would be made of steel. And of course, it would be a real vehicle that she could drive. Thrilled at the thought of building it, Sondra brought her sketches and notes to her dad.

He put on his glasses and looked over her work, thinking. “These are some interesting ideas, honey,” he said. “I see you’ve designed this a lot like your Pinewood Derby car from a few years ago, even down to the lightning bolt shape you love so much.”

“That’s right!” Sondra said, beaming.

“Well, it will certainly look unique,” he said. “But how will it drive?”

“What do you mean?” Sondra asked.

“Well...” Her dad stopped to think. It seemed like he had something to say, but decided against it. “Tell you what. Instead of telling you what I think, why don’t we build Blue Lightning, Mark II the way you’ve designed it?”

Sondra was a bit confused, but she wanted to build the go-cart more than anything, so she agreed.

They took a trip to the hardware store to buy all the parts they needed: a lot of metal, engines, cables, brackets, bolts and screws. They had to stop at a specialty hobbyist store to pick up the steering wheel and the materials they needed to build the steering block—the accelerator and brake pedals, and, of course, a comfy seat for Sondra to sit in. Finally, they stopped at a sporting goods store to buy a helmet and pads for her to wear when she was driving.

Back at home, they brought all their new stuff into the garage and went to work. Over two weekends of hard work, they turned Sondra’s sketches and notes into a real, working go-cart. When they finally mounted the seat on Blue Lightning, Mark II, Sondra felt more proud than she had ever felt in her whole life.

“She looks great!” Sondra said. “All we have to do now is the paint job!”

“Before we do, why don’t we take it for a test drive?” her dad said.

Sondra thought she heard some mischief in his voice and thought about how he had almost said something about her design, but had decided not to. What was he up to?

“Okay,” she said. “Let’s do it!”

So they took the second Blue Lightning out to a nearby parking lot, and Sondra took it for a spin. Her dad made sure she wore her helmet and pads, and watched her as she drove the go-cart around the lot. She noticed that when she tried to go fast, she felt a lot of resistance from the wind. When she slowed down, she didn’t notice it as much.

After she had her fun, she drove back to where her dad was standing. He was smiling like he expected something from her.

“Well, that was fun!” she said. “But I think I know why you wanted me to take it for a test drive.”

“Oh, do you?” he said. “Please share.”

“I noticed that there was a lot of push-back when I would drive it fast,” she said.

“Yes, and?”

“*And* I think it’s because of the lightning bolt shape. The wind pushes in and kind of gets caught in the zigzagging part of the frame,” she said.

“Very good!” her dad said.

“So, why didn’t you tell me about that problem in the first place?” Sondra said. She was a little bit annoyed.

Her dad laughed. “Where’s the fun in that? Didn’t I ever tell you the story about teaching someone to fish?”

“If you give a man a fish, he’ll eat for a day,” Sondra said, mimicking a very wise tone her parents used when they were teaching her lessons. “But if you teach a man to fish, he’ll eat for a lifetime.”

“Exactly, kiddo,” he said. “You may be annoyed now, but I promise, you’ll thank me when you’re older.”

Sondra rolled her eyes. “You always say that!”

“It’s always true,” her dad said, laughing.

“So, now what?” she said.

“Now, we get ice cream. But after that, it’s back to the drawing board for you.”

Sondra smiled. “Sounds good to me. Designing is half the fun anyway!”

So Sondra went back to researching, sketching and taking notes. Her dad emailed her an article about aerodynamics: the science of how air interacts with solid objects. After she read it, she felt silly about her lightning bolt design. But her dad told her that sometimes, the only way we learn how to do something right is by doing it a few times first, and making silly mistakes along the way.

“You know who makes more mistakes than anybody?” he said. “Great inventors!”

That inspired Sondra and she worked harder than ever. Her next design wasn’t shaped like a lightning bolt at all, but more like a Formula One racecar. She started to understand why they were designed the way they were.

She showed her dad her new design, and he nodded with pride. Once again, they went to work, taking apart the first go-cart they’d built and

putting it back together again. When Sondra test-drove the newest Blue Lightning, it came a lot closer to living up to its name.

“What do you think, Dad?” she asked. “Do we need to go back to the drawing board again?”

“You can always make improvements on a design,” he said. “But the race is in two weeks!”

So they decided that Blue Lightning, Mark II was in racing condition, and painted it with the electric blue paint Sondra loved. When the time came to race in the Go-Go Derby, Sondra wasn't worried about whether she came in first place — in her mind, she had already won, by building something better than she had ever built before.

Name: _____ Date: _____

1. What does Sondra build with the help of her dad?

- A a garage where her family can keep its cars
- B a go-cart named Blue Lightning, Mark II
- C a racetrack where she can test her go-cart
- D a hardware store that sells cables and brackets

2. Sondra notices a problem when she takes her go-cart for a test drive. The problem is that when she drives fast, she gets a lot of push-back from the wind. How does she solve this problem?

- A Sondra gets annoyed at her dad.
- B Sondra eats ice cream.
- C Sondra rebuilds her go-cart in a different shape.
- D Sondra designs her go-cart in the shape of a lightning bolt.

3. Read this sentence from the story: "When Sondra test-drove the newest Blue Lightning, it came a lot closer to living up to its name."

What can be concluded from this sentence?

- A Sondra does not like her second go-cart design as much as her first go-cart design.
- B Sondra hopes to finish in first place at the Go-Go Derby.
- C Sondra is upset with her dad.
- D Sondra's go-cart becomes a lot faster after she rebuilds it.

4. Why does Sondra's dad not tell her about the problem with the lightning-shaped design for her go-cart?

- A He does not notice the problem until it is too late.
- B He does not want Sondra to take part in the Go-Go Derby.
- C He is mad at Sondra and does not want her go-cart to work.
- D He wants Sondra to discover the problem on her own.

5. What is a theme of this story?

- A Parents should not let their children try new things.
- B Making mistakes can help you learn.
- C Females are better at building things than males.
- D People should always share their feelings with each other.

6. Read the following sentence: "So how about this: you do some research into how we're actually going to build this thing, and come back to me in a week with a **design**."

What does the word **design** mean in this sentence?

- A a very dangerous idea
- B a place where people go to do research
- C a plan for building something
- D a company that sells cars

7. Choose the answer that best completes the sentence below.

Sondra learns from her mistake with the first go-cart, _____ her second go-cart is faster.

- A so
- B namely
- C initially
- D specifically

8. What mistake does Sondra make when designing her first go-cart?

9. What does Sondra do to fix this mistake when rebuilding her go-cart?

10. Read these sentences from the passage: "‘If you give a man a fish, he’ll eat for a day,’ Sondra said, mimicking a very wise tone her parents used when they were teaching her lessons. ‘But if you teach a man to fish, he’ll eat for a lifetime.’" Explain how the idea of teaching a man to fish relates to the events of the story.

Teacher Guide & Answers

Passage Reading Level: Lexile 765

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8. What mistake does Sondra make when designing her first go-cart?

Suggested answer: Answers may vary in specificity, but all should identify the shape of the go-cart as Sondra’s mistake. She builds the go-cart in the shape of a lightning bolt, which results in significant wind resistance when she drives it.

9. What does Sondra do to fix this mistake when rebuilding her go-cart?

Suggested answer: Answers may vary in specificity but should communicate that Sondra changes the shape of the go-cart. Instead of a lightning bolt, she uses the shape of a Formula One racecar to reduce wind resistance.

10. Read these sentences from the passage: “‘If you give a man a fish, he’ll eat for a day,’ Sondra said, mimicking a very wise tone her parents used when they were teaching her lessons. ‘But if you teach a man to fish, he’ll eat for a lifetime.’” Explain how the idea of teaching a man to fish relates to the events of the story.

Suggested answer: Answers may vary, but students should recognize that Sondra’s experience is analogous to that of a man being taught to fish. Instead of pointing out the flaw in her first go-cart design, Sondra’s father allows her to discover the mistake on her own. That discovery awakens Sondra to the importance of aerodynamics in design and results in her building a better go-cart.