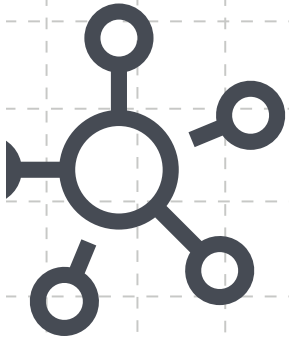
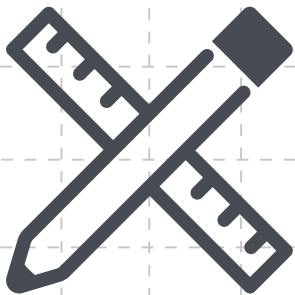
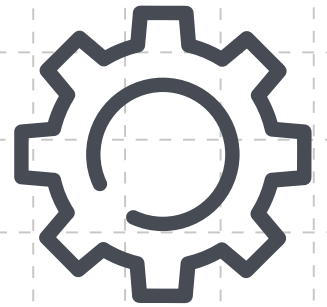


# St. Jude ePic Challenge

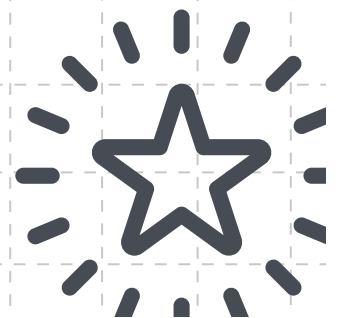
EXPERIMENTING • PROTOTYPING • INVENTING • CREATING



## Parent/Teacher Guide



[stjude.org/epic](http://stjude.org/epic) • [#stjudebeEPIC](https://twitter.com/stjudebeEPIC)



# Unleashing Creativity to Help St. Jude Kids!

Science, technology, engineering and mathematics—they're all used every day on the St. Jude campus. From careful measurements for patients' medicine to the complex mathematics needed in our state-of-the-art research facilities,

STEM skills play an important role in helping our patients. As you work through the research design process, know that you're sharpening important skills that are used every day to help the kids of St. Jude Children's Research Hospital®.



## Meet St. Jude Patient Riku

Riku's best friend is his dad, Jun. They visit the playground together, play tennis, make up silly games. Said Jun, "He's my best friend, too."

Riku's family moved from Japan to California in 2017, when he was 3 years old and only spoke Japanese. "We would go to the park, and he would talk to everybody in Japanese," said his mom, Noriko. "And nobody would understand. So it was a drastic change to him." In 2018,



Riku's life changed again. After he took a tumble and hit his head, a scan revealed a mass on his brain: a type of brain cancer called medulloblastoma.

"I was numb," said Noriko. "I couldn't move. I couldn't think. It's just devastating."

Following surgery, Riku's doctors referred him to St. Jude for the additional treatment he would need: chemotherapy and radiation therapy. "For the radiation part, we really wanted Riku to receive proton therapy," Noriko said. "The proton beam could just hit the tumor and protect other tissue around the tumor." St. Jude is home to the world's first proton beam therapy center dedicated solely to children. And St. Jude is leading the way the world understands, treats and defeats childhood cancer and other life-threatening diseases.

***"I have never seen such a great hospital. We know we can rely on St. Jude and the staff one hundred percent."***

***- Jun, Riku's father***

Riku responded well to treatment and has returned home. "Even though Riku is very small, he's very strong," said Jun.



# This is going to be EPIC!

The St. Jude EPIC (Experimenting, Prototyping, Inventing and Creating) Challenge is designed to promote collaboration, innovation and ingenuity in support of St. Jude. Thanks to fundraisers like EPIC Challenge and supporters like you, St. Jude is leading the way the world understands, treats and defeats childhood cancer and other life-threatening diseases. Thank you for being a special part of this program and for your commitment to St. Jude.

To participate in EPIC Challenge, students can either work individually or in small groups to research, imagine, design, create and present an invention or program that would improve quality of life for kids like those at St. Jude.

As students work through the research design process, they can share their progress with friends and family online to raise funds and awareness for St. Jude. Your support helps us ensure that families never receive a bill from St. Jude for treatment, travel, housing or food—because all a family should worry about is helping their child live.



## Maximize Your Online Impact!

St. Jude EPIC Challenge brings kids together to solve real-world problems. The engineering design process may only take a few days, but all the funds raised will support kids battling cancer and other life-threatening diseases at St. Jude.

Now that you've accepted the challenge, be sure to use your online resources via the fundraising toolkit. This is where the fun begins—start sharing by sending program updates via email and social media to friends, family and supporters. Don't forget to encourage your young inventors to set up their own personal fundraising pages and seek support for their ideas in the form of donations to St. Jude.



All images recorded prior to COVID 19



# EPIC Challenge Lesson Plan

EPIC Challenge follows a flexible five lesson format. Lessons can be extended across multiple weeks, days or even through the course of one day. Please reference the provided student guide for additional details on each lesson.



## Lesson 1: Research

Visit [stjude.org/epicresources](https://www.stjude.org/epicresources) to access videos, articles and more to share the mission of St. Jude with your students. Here are a few fun facts to get you started:

- Treatments invented at St. Jude have helped increase the overall childhood cancer survival rate from 20% to more than 80% since we opened more than 50 years ago. We won't stop until no child dies from cancer.
- St. Jude is where doctors often send their toughest cases, because St. Jude has the world's best survival rates for some of the most aggressive forms of childhood cancer.
- St. Jude treats children from all 50 states and around the world.
- When St. Jude opened its doors in 1962, it made history as a hospital that would treat children with catastrophic diseases while also searching for cures—and for becoming the first fully integrated children's hospital in the South.
- Even though the kids at St. Jude are fighting cancer, everyone at the hospital tries to make their lives as normal as possible. Patients even attend school in the hospital.



## Lesson 2: Plan

Use these prompts (or work with students to make their own) to spark creativity and launch the research process. Students can work individually or in small groups to research and brainstorm potential problems and solutions.



### School (Educational)

Patients at St. Jude often miss lots of school while they're receiving treatment. What can you invent to help make sure that kids with cancer don't fall behind in their studies?

Teachers at the St. Jude School teach every subject and every grade! What can you invent to make the job of a St. Jude teacher easier so that every patient gets what they need?



### Friends (Social)

St. Jude patients often spend important days—like birthdays—at the hospital, away from their friends. What can you create to help kids stay in touch while they're in treatment?

For some families, St. Jude becomes a home away from home during treatment. St. Jude treats patients from all over the world. That means lots of kids at St. Jude speak different languages. What can you create to help kids who speak different languages communicate?





# EPIC Challenge Lesson Plan

## Feelings (Emotional)

Kids at St. Jude sometimes need to leave home and relocate to the hospital to receive treatment. What can you invent to help kids who have moved feel more at home?

Going through treatment for cancer can sometimes feel uncomfortable and scary. What can you invent to help kids feel calm and safe while they go through treatment?

St. Jude patient **Lydia**,  
brain cancer



## Body (Physical)

Sometimes, patients at St. Jude need help getting around and need to use wheelchairs, crutches or walkers. What else can you invent to improve mobility for kids impacted by cancer?

Kids battling cancer can sometimes feel too sick to participate in sports and other activities. What can you create to help kids with cancer stay active even when they're too sick to play?

Prompt students to decide on an invention to pursue. Students will then sketch a blueprint of their design.

## Lesson 3: Create

Guide students to create a model or overview of their invention. Students may use classroom materials or items from home.

### Suggested Materials:

The following materials\* are suggested for students to choose from as they construct their invention models:

- Paper rolls
- Paper cups
- Aluminum foil
- Paper plates
- Empty cardboard boxes
- Popsicle sticks
- Pipe cleaners
- Rubber bands
- Playdough or clay
- Crayons/markers
- Construction paper
- Tape and glue
- Scissors

*\*Teacher tip: a parent letter is provided in your resource center should you choose to host a supply drive.*



# EPIC Challenge Lesson Plan



## Lesson 4: Test & Improve

Help students finish creating their invention models and test them for effectiveness. Check in with students about their fundraising goals, and remind them of the cool prizes they can earn as they reach their fundraising milestones.



## Lesson 5: Share

Present inventions to classmates, peers, family and supporters. Choose from one of these presentation methods or create your own:

- Create an **instruction manual** or **brochure** about your invention. Include illustrations or photos of your invention with labels, how it works and how it will help.
- Create a **poster** about your invention. Make sure to include illustrations or photos of your invention, how it works and how it will help.
- Make a **video** that shows your invention and explains how it works. Make sure to describe how it will help kids like those at St. Jude.



St. Jude patient  
**Keeton**, blood cancer



# Next Generation Science Standards Alignment

St. Jude EPIC Challenge was created by educators and designed to align with Next Generation Science Standards, a multi-state effort to provide all students an internationally benchmarked science education. See below for a comprehensive list of Engineering Design standards supported by St. Jude EPIC Challenge.

<b>K-2-ETS1-1</b>	Ask questions, make observations and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
<b>K-2-ETS1-2</b>	Develop a simple sketch, drawing or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
<b>K-2-ETS1-3</b>	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
<b>3-5-ETS1-1</b>	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time or cost.
<b>3-5-ETS1-2</b>	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
<b>3-5-ETS1-3</b>	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.



All images recorded prior to COVID 19





# St. Jude Educator Ambassador Network

St. Jude EPIC Challenge was developed in partnership with the St. Jude Educator Ambassador Network, a group of teachers passionate about bringing the mission of St. Jude to young learners.



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For more free resources and quarterly updates from St. Jude and the Educator Ambassador Network, sign up for our Educators for St. Jude Newsletter at [stjude.org/educators](https://stjude.org/educators).

