PURDUE UNIVERSITY | Extension INDIANA 4-H

How to Plan a Week-Long STEM Camp

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County Extension Director

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"Informal learning environments increase students' interest in STEM and the chances a student will pursue a STEM career." Additionally, studies from the After School Alliance (2015), show that students who have an increased interest in science, technology, engineering, and mathematics in their early years of education are more likely to pursue STEM related careers. Research has shown the importance in motivating youth to learn STEM concepts in the elementary and middle grades. Additionally, informal STEM experiences allow youth to experience STEM through engaging, hands-on activities."

According to research by Thomas Roberts, Christa Jackson, Margaret Mohr-Schroeder, Sarah Bush, Catherine Maiorca, Maureen Cavalcanti, Craig Schroeder, Ashley Delaney, Lydia Putnam, and Chaise Cremeans (International Journal of STEM Education, 2018)

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STEAM (Science Technology Engineering Art Mathematics) Camp

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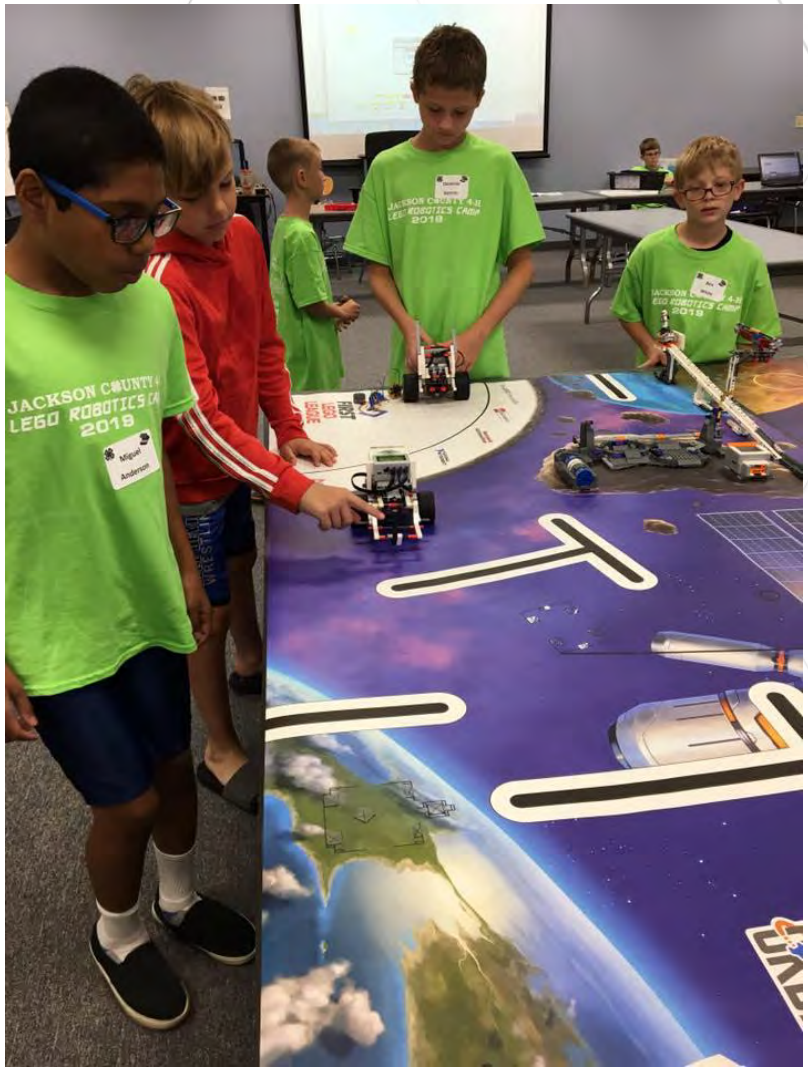
LEGO Robotics Camp



Let's Get Started!

- Create a Budget
- Recruit Volunteers & Determine the Camp Schedule
- Market the Camp Experience
- Facilitate Registrations & Purchase Supplies
- Host the Camp Experience
- Celebrate the Impact

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Create a Budget

Example: 2018 STEAM Camp Budget

Program Income									
		Educators		0		Total Participants		15	
		Adults		0					
		Counselors		0					
		Campers		15					
		Fee Charged		$50.00					
			Total		$750.00				
Program Expenses									
	4-H Program Fees (6)			$120.00					
	Tshirts (projected)			$178.00					
	Class Supplies/Snacks			$183.18					
	Class Supplies/Snacks			$15.48					
	Class Supplies/Snacks			$11.94					
	Class Supplies/Snacks			$74.23					
			Total		$582.83				
Profit/Loss					$167.17				

Create a Budget

Example: 2019 LEGO Camp Budget

$50.00 per 4-H Member (30 participants)

Total Budget	$1500.00
4-H Program Fees (19 youth)	$380.00
Shirts from CPC	$288.00
LEGO Kits & Snacks	$584.50
Balance Remaining	$247.50

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Recruit Volunteers & Determine the Camp Schedule

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LEGO Camp Schedule

Monday, June 3rd

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
  - Meet & Greet Parents
  - Answer Questions
- 9:15 – 10:15 a.m. – LEGO Robot Introduction/Building with Joe
  - Provide assistance/classroom management as needed
- 10:15 – 10:30 a.m. – Snack
- 10:30 – 11:50 a.m. – Build LEGO Robots & How to Program Intro
- 11:50/55 – 12:00 p.m. (noon) – Pack Up & Go Home

Tuesday, June 4th

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
  - Meet & Greet Parents
  - Answer Questions
- 9:15 – 10:15 a.m. – Learn how to Program LEGO Robots
  - Provide assistance/classroom management as needed
- 10:15 – 10:30 a.m. – Snack
- 10:30 – 11:50 a.m. – Learn how to Program LEGO Robots
- 11:50/55 – 12:00 p.m. (noon) – Pack Up & Go Home

Wednesday, June 5th

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
  - Meet & Greet Parents
  - Answer Questions
- 9:15 – 10:15 a.m. – Learn about Completing Challenges with LEGO Robots
  - Provide assistance/classroom management as needed
- 10:15 – 10:30 a.m. – Snack
- 10:30 – 11:50 a.m. – LEGO Robot Challenges
- 11:50/55 – 12:00 p.m. (noon) – Pack Up & Go Home

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LEGO Camp Schedule

Thursday, June 6th

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
  - Meet & Greet Parents
  - Answer Questions
- 9:15 – 10:15 a.m. – LEGO Robot Challenges
  - Provide assistance/classroom management as needed
- 10:15 – 10:30 a.m. – Snack
- 10:30 – 11:50 a.m. – LEGO Robot Challenges
- 11:50/55 – 12:00 p.m. (noon) – Pack Up & Go Home

Friday, June 7th

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
  - Meet & Greet Parents
  - Answer Questions
- 9:15 – 9:45 a.m. – Common Measures Science Survey
- 9:45 – 10:00 a.m. – Snack (Can be flexible on time.)
- 10:00 – 11:00 a.m. – Last Minute Practice for Challenges
  - Provide assistance/classroom management as needed
- 11:00 a.m. – 11:45 a.m. – Demonstration for Parents/Guests
- 11:45 a.m. – 12:00 p.m. (noon) – Pack Up & Go Home
  - Must completely take apart all LEGO Robots

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STEAM Camp Schedule

Monday June 11th – **Science**

- 9:00 – 9:15 a.m. – Check In and Welcome
- 9:15 – 9:30 a.m. – Ground Rules/Behavior Expectations
- 9:30 – 10 a.m. – Ice Breaker Games & Get to Know You Scavenger Hunt with whole group
- 10:00 – 11:50 a.m. – Food Science: Molly Marshall
- 10:50 – 11:00 a.m. – Break
- 11:00 a.m. – 11:45 a.m. – Plant Science: Richard Beckort

11:45 – 12:00 p.m. – Pack Up and Go Home

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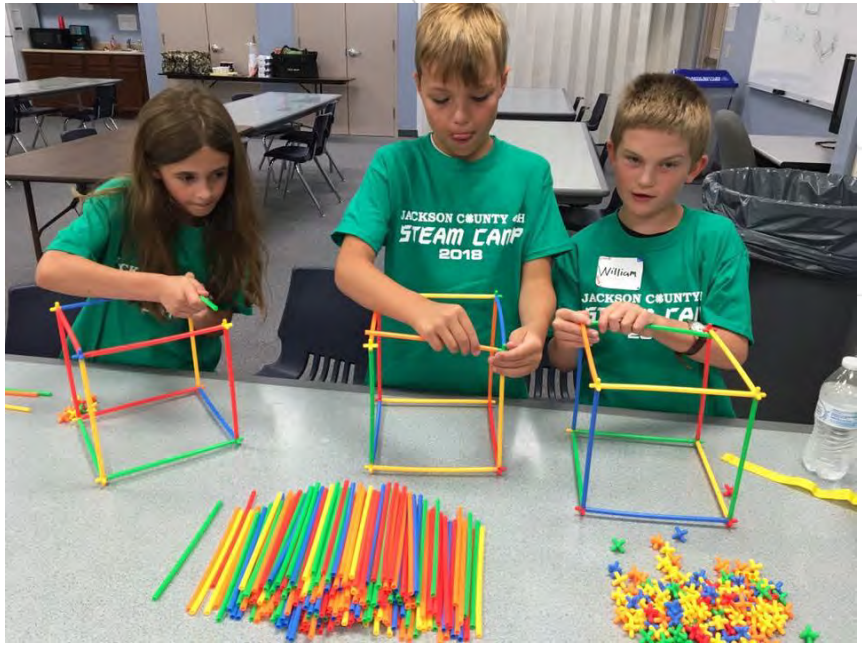
STEAM Camp Schedule

<u>Tuesday June 12th – **Technology**</u>

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
- 9:15 – 9:30 a.m. – Ice Breaker
- 9:30 – 10:45 a.m. – Incredible Wearables: Sam McCollum
- 10:45 – 11:00 a.m. – Snack and Break
- 11:00 – 11:50 a.m. – 3D Pens, 3D Printer, Makey Makey, Bloxels, Strawbees, Other Technology
- 11:50 – 12:00 p.m. – Pack Up and Go Home



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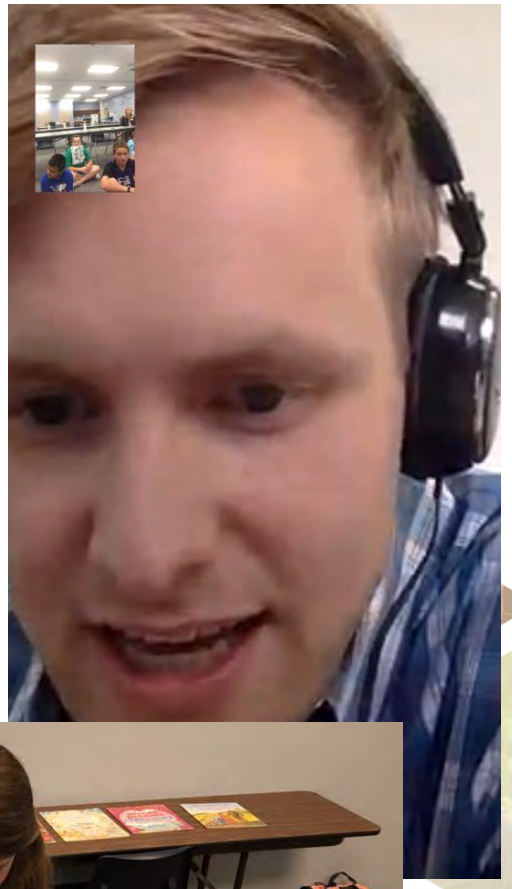
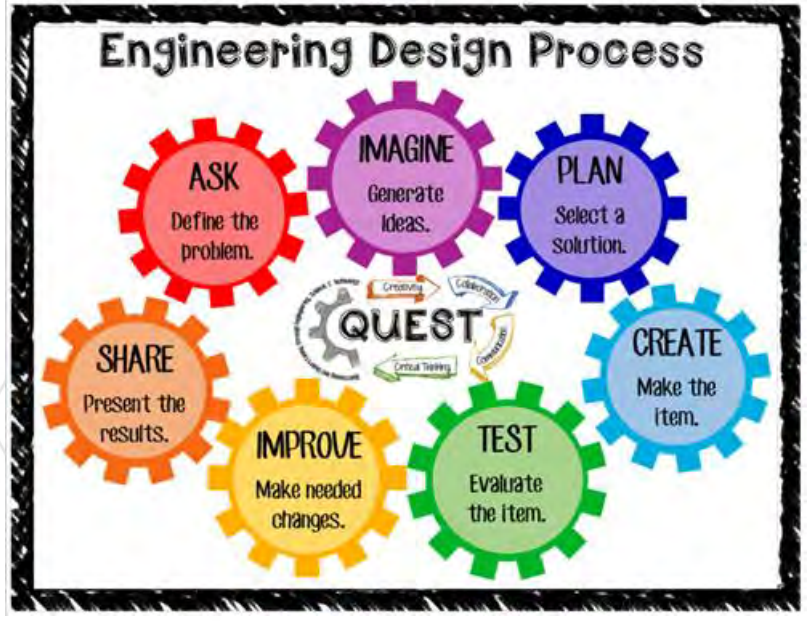
STEAM Camp Schedule

Wednesday June 13th – **Engineering**

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
- 9:15 – 9:30 a.m. – Ice Breaker
- 9:30 a.m. – 10:45 a.m. – HEXBUG Activity and the Engineering Design Process
- 10:45 – 11:00 a.m. – Snack and Break
- 11:00 a.m. – 11:25 a.m. – Review Engineering Design Process
- 11:30 a.m. – 11:55 a.m. –Skype with Matt Moravec, Computer Engineer in San Francisco, Seymour High School graduate
- 11:55 a.m. – 12:00 p.m. – Pack Up and Go Home





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STEAM Camp Schedule

Thursday June 14th – **Art**

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
- 9:15 – 9:30 a.m. – Ice Breaker
- 9:30 a.m. – 10:30 a.m. – Art Lesson: Alysha Johnson
- 10:30 – 10:45 a.m. – Snack and Break
- 10:45 a.m. – 11:45 a.m. – Art Lesson: Alysha Johnson
- 11:45 – 12:00 p.m. – Pack Up and Go Home

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STEAM Camp Schedule

Friday June 15th – **Math**

- 9:00 – 9:15 a.m. – Check In and Review Behavior Expectations
- 9:15 – 9:30 a.m. – Ice Breaker
- 9:30 a.m. – 10:15 a.m. – Donald Duck in Mathmagic Land YouTube Video: https://www.youtube.com/watch?v=PvceKeHl0Sg
- 10:15 – 10:30 a.m. – Math Activity: Star Activity (Infinity)
- 10:30 – 10:45 a.m. – Snack and Break
- 10:45 – 11:00 a.m. – Math Activity: Math in Nature (go outside)
- 11:00 – 11:15 a.m. – Discuss Math in Nature Activity (share examples from outside)
- 11:15 – 11:25 a.m. – Whole-y Cow! Book/Fractions
- 11:25 a.m. – 11:40 a.m. – Common Measures Survey
- 11:40 a.m. – 12:00 p.m. – Pack Up and Go Home

Market the Camp Experience

Summer 2018

4-H Science Camps

SPARKing an Interest in STEM

#ScienceGrowsHere

June 11-15

STEAM Camp

June 18-22

Advanced LEGO Robotics Camp

4-H STEM

Science, Technology, Engineering & Math

Jackson County 4-H, Purdue Polytechnic—Columbus, and the Jackson County Learning Center are excited to offer **TWO 4-H Science Camps in 2018!**

Youth who participate must have been enrolled in grades 3-6 as of October 1, 2017. Details for each camp are listed below.

STEAM Camp

June 11-15, 2018

This exciting camp is for elementary school children to learn about Science, Technology, Engineering, Art, and Mathematics. Hands on experiments and learning activities using 4-H's slogan of "Learn by Doing" will be the focus each day of STEAM Camp.

June 11th, Science: Learn all about food and plant science with Purdue Extension Educators Molly Marshall and Richard Beckort.

June 12th, Technology: Learn about all of the latest and greatest technologies!

June 13th, Engineering: Learn about the engineering design process and create various structures.

June 14th, Art: Have fun with art!

June 15th, Mathematics: Solve real world problems using your mathematics skills!

Registration details on the back!

Advanced LEGO Robotics Camp

June 18-22, 2018

The Advanced LEGO Robotics Camp will consist of hands-on experiences, guided by Dr. Joe Fuehne, Associate Professor of Mechanical Engineering Technology and Director for Purdue Polytechnic-Columbus. Mr. Fuehne is also a Jackson County 4-H volunteer.

This camp will focus on the use of LEGO™ bricks to learn Robotics. Campers will learn how to build a LEGO™ Robot, how to attach sensors to the robot, and how to control its movement through computer programming.

Purdue University is an equal access/equal opportunity institution.

4-H GROWS HERE

PURDUE EXTENSION | LOCAL FACES COUNTLESS CONNECTIONS

Camp Details

The cost for each camp is **$50 per camper**. The cost includes access to the 4-H program, a camp shirt, camp supplies, camp materials, name tags, and snacks for every camper. Checks should be made payable to the **Extension Education Fund**.

Contact the Jackson County Purdue Extension Office for registration forms or **download the registration forms on our website: http://bit.ly/JackonCounty4H2018ScienceCamps.**

All forms and the check should be sent to:

Purdue Extension Jackson County

111 South Main Street, Ste. 10

Brownstown, IN 47220

- Parents will be required to provide transportation for their child to and from camp each day.
- Each session will run from **9:00 a.m. – 12:00 p.m.** and will take place at the Jackson County Learning Center, 323 Dupont Drive, Seymour. **Youth are expected to be picked up promptly at 12:00 p.m.**
- Snacks will be provided. Please indicate dietary restrictions on the registration form.

SPACE IS LIMITED!

STEAM CAMP: LIMIT 30 PARTICIPANTS

LEGO CAMP: LIMIT 30 PARTICIPANTS

Thank you to Duke Energy for a LEGO Robotics and BoilerMAKER Blast Grant!

DUKE ENERGY®

For more information contact:

Purdue Extension Jackson County

812-358-6101

Heather VonDielingen

schneidh@purdue.edu

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Market the Camp Experience

Summer 2019

4-H Science Camps

SPARKing an Interest in STEM

#ScienceGrowsHere

June 3-7, 2019

Advanced LEGO Robotics Camp

4-H STEM

Science, Technology, Engineering & Math

Jackson County 4-H, Purdue Polytechnic—Columbus, and the Jackson County Learning Center are excited to offer an Advanced LEGO Robotics Camp.

Youth who participate must have been enrolled in grades 3-6 as of October 1, 2018. Details for LEGO Camp are listed below.

Advanced LEGO Robotics Camp

June 3-7, 2019

The Advanced LEGO Robotics Camp will consist of hands-on experiences, guided by Dr. Joe Fuehne, Associate Professor of Mechanical Engineering Technology and Director for Purdue Polytechnic-Columbus. Mr. Fuehne is also a Jackson County 4-H volunteer.

This camp will focus on the use of LEGO™ bricks to learn Robotics. Campers will learn how to build a LEGO™ Robot, how to attach sensors to the robot, and how to control its movement through computer programming. Parents will be invited to attend the last hour of the camp on Friday, June 7th for a demonstration.

Registration details on the back!

INDIANA 4-H FOUNDATION

DUKE ENERGY®

Thank you to Duke Energy and the Indiana 4-H Foundation for a LEGO Robotics Grant that makes this annual science camp experience possible!

Purdue University is an equal access/equal opportunity institution.

4-H GROWS HERE

PURDUE EXTENSION

Camp Details

The cost for LEGO Robotics Camp is **$50 per camper**. The cost includes access to the 4-H program, a camp shirt, camp supplies, camp materials, name tags, and snacks for every camper. Checks should be made payable to the **Extension Education Fund**.

Contact the Jackson County Purdue Extension Office for registration forms or **download the registration forms on our website: http://bit.ly/2019JacksonCountyLEGOCamp**

All forms and the check should be sent to:

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111 South Main Street, Ste. 10

Brownstown, IN 47220

- Parents will be required to provide transportation for their child to and from camp each day.
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For more information contact:

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schneidh@purdue.edu

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Market the Camp Experience

How do we reach new audiences?

- Social Media
- Purdue Extension Website
- Local Visitors' Center Newsletter
- Local Industrial Development Corporation
- Technology Email Distribution List
- Local Elementary/Middle Schools

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Facilitate Registration & Purchase Supplies

<u>Registration Process in the Past</u>

- SPARK Club Enrollment Form
- 4-H Youth Health Form
- 4-H Science Camp Registration Form
- Shirt Order Form
- Check or cash to Purdue Extension Education Fund

<u>Piloting in 2020</u>

- Online Event Registration through 4HOnline
- Parents have requested in the past to pay via credit card online.
- Checks will still be accepted.

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STEAM Camp Supplies

Supplies to Purchase

- Snacks/Drinks for each day (healthy/low sugar)
- T-Shirts from CPC
- Name Tag holders
- Spaghetti/Marshmallows
- Wipes
- Supplies for food/plant science lessons
- Art Supplies: water color paper pad, 2 large containers of table salt, water color pallets (enough for a few students to share), liquid water color if possible, paint brushes, crayons, markers
- Food Science Supplies: two red delicious apples, three varieties of apples to taste, two Russet potatoes, lemon juice, paper plates, plastic or Styrofoam cups, plastic spoons, two vitamin C tables (not coated), plastic knives, paper towels, hand soap
- Clip Boards
- General Office Supplies

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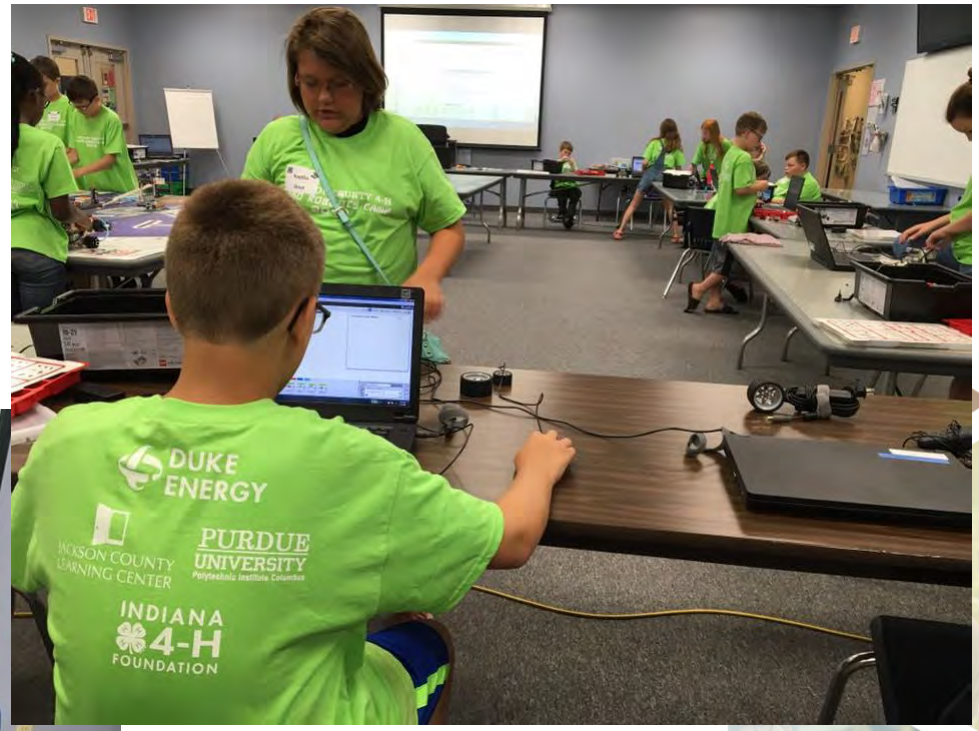
LEGO Camp Supplies

Supplies to Purchase

- Snacks for each day (healthy/low sugar)
- Drinks for each day (healthy/low sugar)
- T-Shirts from CPC
- Name Tags (enough for each day)
- Wipes
- Pens/Pencils
- General Office Supplies
- LEGO Giveaways
- Other STEM Related Giveaway



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Host the Camp Experience

DUKE ENERGY®

JACKSON COUNTY LEARNING CENTER

INDIANA 4-H FOUNDATION

PURDUE UNIVERSITY®

Polytechnic Institute Columbus

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Celebrate the Impact

2019 Computer Science Impact in Jackson County

100% of LEGO Camp attendees said they like engineering and would like a job that uses engineering concepts

100% of youth who attended the Computer Coding SPARK Club learned new engineering concepts.

75% of LEGO Camp attendees learned that science can be used to help solve everyday problems

LEGO Robotics Camp Comments from three month follow up survey:

- I learned how to use programming from start to finish.
- I have used what I learned at school and when I have done robot kits at home that I got as presents.
- I remember learning how to use the computer to program the robot.
- Comment from a mother: Thanks for this program! I know Rylan has loved going to summer camp, it is his favorite by far!

17 New 4-H Members were recruited to the Jackson County 4-H Program through the LEGO Robotics Camp

EXTENSION HAS A BOLD GOAL:

10 MILLION TRUE LEADERS

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Thank you for joining us today!