K-STATE Research and Extension | Reno County

# School Enrichment
# 2022-2023

*Any associated costs are only to cover program expenditures and consumables*

Contact 4-H Youth Development Agent, Adam Lesser, 620-662-2371 or alesser@ksu.edu for the following programs. This section is designed to be led by KSRE staff.

| | Title | Description | Grade Levels | Important Notes | Supported Standards |
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|  | Robotics 1: Intro to Electricity | How does electricity work? Students will first learn how to a basic circuit works using Brushbots, and then investigate changes to make other circuits more complex. **Optional**: Then they will see electricity in action as they investigate using remote controlled robots! | 2-4 | Free<br><br>Please note if your class would like to use our robots. | PS1.A<br>PS3.A, B |
|  | Robotics 2: Basic Programming | Students will learn firsthand how programming allows us to solve problems! Students create traceable paths of code and see how that changes the robot in real time using these Dash robots. Tablets are provided with no other required connections. | 2-5 | Free<br><br>12 Robots available, please call to discuss classes larger than 24 students.<br><br>Tablets provided to control robots | PS4.C |
| | Robotics 3: Continued Programming | With some programming under their belt, students will be given a challenge! Modular competitions are available, depending on time constraints. Classes should complete Robotics 2 prior to this lesson. | 3-5 | | PS4.C |

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| | Bonding Thru Board Games | There's a lot to learn when it comes to board games. This adapted, research-based program includes education on how board games have changed, and how their use can build stronger teams and relationships. More information, including a game list, can be found at: https://www.reno.k-state.edu/4-h/btbg/index.html Great for after school clubs! | 3 + | Free | KHGSSS1.1, 2, & 4; CL.SL.p4.2; CL.SL.p4.5 LC.IT.p4.1 (Multiple SECD standards) |

These two lessons are designed to be completed by KSRE staff, but lesson materials are also available by request for teachers wishing to conduct the lessons themselves.

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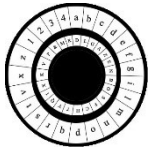
|  | Ice Cream in a Bag | Students will learn a recipe for making ice cream. Identify where ice cream fits into nutritious eating and observe the scientific change of matter and conservation of energy. | K-8 | Cost $10 per class *Lesson information also available by request* | PS1.A PS3: A, B |
|  | Sugar Rush | Sugar is everywhere! In this presentation and hands on lab, students will have the opportunity to learn how much sugar is added to popular drinks and food. A follow up activity shows how differently simple and complex sugars are absorbed, and which one can help provide more lasting energy. | 2-8 | Free *Lesson information also available by request* | LS1.C; PS1.A; PS3.D |

The following materials are available for check out through the extension office. A request may be made for a KSRE representative to present the lesson and will be completed as schedules permit.

| | Title | Description | Grade Levels | Important Notes | Applicable Standards |
|---|---|---|---|---|---|
|  | Chick Embryology | Study the stages of embryonic growth and the many things that can affect the speed of growth and the ability to form healthy chicks in this weeklong incubation and hatching project. Coordination of materials prior to receiving eggs is required. | K-8 | Available spring only, dependent on access to pheasant eggs. Reserve 2nd semester. | LS1: A, B, C; LS2: B, D |
|  | Life Cycle Miracle | Watch painted lady caterpillars grow, form chrysalides and hatch into butterflies. Learn about the anatomy life cycle and the role of a butterfly in its environment. Compare the similarities between a butterfly and a moth. | K-5 | Butterfly Larva (5) with food in a sealed cup Cost $20/cup | LS1: A, B, C; LS2: B |
|  | Fight Bac! | Students use a black light and glow powder to learn how to get their hands clean with soap and water. KSRE will provide Glitterbug handwashing gel, powder, black light, and lesson materials. | K-2 | Free | LS2.A |
|  | Popcorn in a Bag | Students will explore the wonderful world of popcorn as they complete experiments, solve popcorn math problems, and work through a variety of language arts activities. KSRE will provide the popcorn machine and lesson information. Teachers will supply the popcorn and oil. | K-5 | Free | LS1.C LS2.A |
|  | Cipher Wheels | This activity introduces concepts of cybersecurity and protecting our assets in space. Students will use a Caesar cipher wheel to decode a secret message, encrypt and decipher words with their peers, and participate in a group relay race. This activity builds computational thinking skills of pattern recognition as students search for solutions. | 3-8 | Free 40 minutes | 3.NBT.2 4.OA.5 PS4.C |

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| | Cosmic Claws | In this activity, youth will use the Engineering Design Process to design, build, and operate a robotic claw. Working together, the group will create a model of a hydraulic-powered robotic arm and claw and test it by completing an agricultural task. Ultimately, the mechanical claw should be able to perform a simple grasping, scooping, or raking action to cultivate crops on another world. | 3-8 | Free<br>45 – 60 minutes | ETS1-<br>1,2,3, |
| | Astro Adventure | In this Catan-like board game, youth will attempt to expand their influence on our solar system by collecting resources and adding spacecraft to their fleet. They will learn about the resources needed for space exploration and where they could be found. In addition, youth will explore the implications of space travel on human health in this interplanetary adventure. | 3-8 | Free<br>45 minutes | ESS3.A |
| | Simon Builds | In this activity, students will put their communication skills to the test! In teams of 2 (or more) they will use tangrams to make different shapes. But there's a catch! Only one person can see the solution! This is a great opportunity to help students learn to persevere and work on their verbal communication. | 3-8 | Free<br>30 min<br><br>*Ask for digital files and you can set up your own in class lesson.* | CL.SL.p4.2<br>CL.SL.p4.3<br>CL.SL.p4.5 |

All programs and materials checkout require a demographics survey to be completed. In most cases, school secretaries have been able to help provide these records of your classroom students.

Looking for help with these lessons, or need help on another lesson you have coming up? Please reach out to talk things over or set up a meeting in person or via zoom. Didn't find what you were looking for? Feel free to contact us with a topic request!

Thank you for considering these resources,

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