In 2019, sixty-five public and school libraries in Idaho received grants to provide STEM learning opportunities during the summer months. At the end of the summer, they each reported on what they had done with the funds. The following is a collection of activities and experiments that Idaho libraries used to engage young learners.

Please Note:
- These may not be the exact activities performed in each library.
- Some very popular activities can be found in more than one category of this list.
- Every effort was made to find an online source that would provide a good representation for each activity.
- Some activities were so broad or widely-known that they did not require a link to an online source.
- Don’t forget to check out the Summer STEM Toolkit from ICFL for more great ideas.
# Summer STEM

## Experiments from Idaho Libraries

### Aerodynamics (Things that Fly & Spin)
- Air Compression Rockets
- Alka Seltzer Rockets
- Balloon Rockets
- Bottle Rockets with Vinegar & Baking Soda
- Design a Wind Turbines & Pinwheels
- Estes Model Rocket Launch
- Film Cannister Rockets
- Hoop Gliders
- Jumping Frogs with Straws
- Marshmallow Launcher
- Paper Airplanes
- Paper Kites
- Paper Rockets
- PVC Rocket Launcher
- Rubber Band Helicopters
- Stomp Rockets
- Straw Rockets
- Straw Spinners
- Suspension Bridges

### Art
- Beautiful Bubbles
- Book Making Crafts
- Bubble Painting
- Button Making
- Color Wheel
- Crayons in a Glue Gun
- DIY Watercolor with Sharpies & Rubbing Alcohol
- Drawing with scale and proportion
- Face Painting
- God’s Eye Weaving Craft
- Kaleidoscope
- Mobiles
- Moon Rock Painting
- Origami
- Painted Pinecones
- Painted Rocks
- Painting with Magnets
- Sculpture
- Sharpie Tie Die
- Shaving Cream Art
- Sketching
- Spin Art
- Spray Chalk
- Stamps
- Sun Paper
- Suncatchers
- Tar Paper Art
- Thaumatropes or Spinning Discs
- Tie Dye T-Shirts
- Wool Craft

### Board Games
- ColorKu
- Mastermind
- Qwirkle Board Game
- Sequence
- Sumoku
**Color Science**
- Peppermint Fireworks
- UV Beads
- UV Beads and Sunscreen
- Walking Water
- Rainbow Paper
- Rainbow Baking Soda & Vinegar

**Engineering & Building**
- 3-D Structures with Straws
- Balloon Cars
- Brain Flakes
- Bridges
- Building with Magnets/Magnatiles
- Building with Playing Cards
- Building with Rainbow Toy Frog Blocks
- Cardboard and String Robot Hand
- Cardboard Hydraulic Arm
- Catapults
- Cup Building Challenge
- Dam Design
- Duplos
- Egg Drop Challenge
- Film Cannister Rockets
- Floating Boat Experiment
- Fort Building
- Gears
- Geodesic Newspaper Dome
- Geometric Shapes Building Set
- Gone Fishin’
- Keva Planks
- LEGO® boats
- LEGO® Simple Machines
- Makedo Cardboard Construction
- Marble Run
- Marshmallow Toothpick Structures *
- Pendulums
- Pom Pom Catapults
- Puzzling Packets
- Rainbow Stack Ball Track
- Rubber Band Helicopters
- Rube Goldberg Machine
- Squigz
- Straw and Cup Tower Challenge
- Straws and Connectors
- Tangrams
- Tegu Magnetic Blocks
- Tegu Wooden Blocks
- Whirligigs
- Wooden Simple machines
- Zoob Builders

*Variations on this activity use pretzels or uncooked spaghetti in place of toothpicks

**Electricity**
- Circuit Design
- Design thinking/Inventor’s Club
- Electron (Vacuum) Tubes
- Energy Sticks
- Fruit and Vegetable Electricity
- Paper Circuit Light Cards

**Harry Potter**
- Bertie Bot’s Every Flavor Bean Coding Challenge
- Lumos! Magic Circuit Wands
- Magnetic Troll Bogeys
- More Potions
- Potions
- Wingardium Leviosa Magnetic Wands
Great Outdoors

Animal Adaptations
Biomimicry
Build a Water Filter
Cheerio Bird Feeders
Compost Critters
DIY Windsocks
Fishing Pole Magnets
Fossil Identification
Frozen Animal Rescue
Identify Cloud Types
Insect Identification
Jump Rope
Light and Sound Activities
Make a Duck Call
Nature Clay Prints
Nature Scavenger Hunt

Newspaper Hats
Owl Pellets
Photosynthesis
Plant Pounding
Plant Printing
Playdough Rock Core Samples
Precipitation Activities
Rain sticks
Seed Bombs
Seed Planting
Seed Tape
Solar Oven
Sundials
Thunder Tube
UV Beads and Sunscreen
Water Cycle in a Bag

Guest Speakers

501st Rebel Legion
Anthony Haskett – MOSAICS Public School, Caldwell
Discovery Center of Idaho

John Herrington, Astronaut
Mobius Science Center – Spokane Area
Radical Rick – North Idaho

Messy Science

Amazing Mentos and this variation with lifesavers
Baking Soda & Vinegar
Chemical Reactions
Density of Liquids
DIY Lava Lamp
Elephant Toothpaste
Extracting DNA from Banana
Galaxy Slime
Giant Bubbles
Glitter Germs
I Spy Sensory Bags
Large Bubble Wands
Mad Matter Sensory Dough
Magic Balloons
Magnetic Slime

Make Your Own Ice Cream
Make Your Own Slime
Mentos Rocket
Ocean in a Bottle Sensory Tube
Oobleck
Orbeez Stress Balls
Physical Reactions
Playdough
Silly Putty
Soda Geyser Car
Vanishing Styrofoam
Water Balloon Pinata
Water Beads
Water Wall
What Sugar Does to Your Teeth
Windbags
Math
Sidewalk Chalk Math
Pattern Blocks
Snap Cubes
Mini muffin matchup counting

Robots & Tech
3D Pens
3D Printing
Augmented Reality Coloring Sheets
Bee-Bots
Binary Bracelets
Binary Bracelets
Bristlebots
Circuit Boards
Circuit Critters
Code-a-pillar
Crack the Code
Deconstruction of old appliances and computers
Drones
Edison Robots
HEXBUG Cuddlebots
Kibo Robots
LEGO® Coding
Little Bits
Makey Makey
Micro:bits
Ozobots
Robotic Tinkering
Scribblebots
Snap Circuits
Squishy Circuits
Stop Motion Movie Making
VR

Space
Alien Slime
Asteroid and Comet Toss
Astronaut Costume
Build a Mars Rover Kit
Coffee Filter Planets
Constellation Building
Constellation Keychains
Constellation Viewer
Create and Dissolve Moon Rocks
Design & craft the International Space Station from cardboard
Flashlight Constellation
Moon Craters
Moon Rocks
Pocket Solar System
Recipe for a planet
Rocketship Tent
Saturn CD
Solar System Hats
Solar System Scale Bead Activity
Solar System Walk
Solar Telescope
Space Lander Challenge
Space Wreaths
Space-themed Suncatchers
Star Charts
Star Finder
Star Lab
Straw Rockets
Textured Moon Painting
VR Space Walk
Moon Buggy