Action Camera

Mid-Valley
STEM-CTE HUB

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Action Camera

Capture every thrilling moment wherever the action takes you! The Action Cam Kit is designed for students eager to explore fast-paced storytelling and adventure filming. Whether capturing science experiments, sports, or outdoor activities, this kit provides the durability and versatility needed to document it all.

Grade Level

6th - 12th grades

Group Size

1 to 4 students per camera

Time Duration

1 hour - multiple sessions

Content of Kits

Components

- GoPro 13
- Micro SD card
- Bouyant tripod
- Clamp camera mounts
- Hardshell camera case
- Charging cable
- GoPro Manual

Software

- Kapwing and Canva both have free options available that allow users to edit video files.

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Usage

Getting Started

1. **Before use make sure there is a micro SD card inside the camera and the battery is charged.**

2. **Power on the GoPro.** Press and hold the Power/Mode button on the side of the GoPro until the screen lights up.

3. **Adjust camera settings by using the touchscreen to navigate menus:**
    - Swipe left/right to switch between video, photo, and time-lapse modes.
    - Go to settings to adjust resolution, frame rate, and other options.
    - Quick setup: use presets “4K 60fps” for video or “SuperPhoto” for photos.

4. **Attach the GoPro to a mount or tripod.** Slide the mounting fingers into the brackets and secure them with the thumbscrew.

5. **Start recording.** Press the shutter button (top of the GoPro) to start recording or take a photo. Press it again to stop recording.

6. **Reminder:** Transfer the captured files to your computer before clearing the SD card and returning the kit to the Educators' Lending Library.

Storage

When storing return all components back to the provided storage container. Ensure the camera and mounts are disassembled and camera is returned to hard case between uses. Camera and accessories need to be clean and dry when stored.

Troubleshooting

- Ensure the battery is charged and inserted properly. If the GoPro will not turn on, reset it by holding down Power/Mode for 10 seconds.
- Restart by holding Power if the camera is unresponsive.
- Blurry footage - Clean the lens and check for scratches, dirt, or moisture.
- SD card error - Format the SD card in the GoPro settings menu.
- Disable Wi-Fi, GPS, lower brightness, or use QuickCapture mode if the battery is draining quickly.

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Activity Guide

Beginner

Nature and Experiment Observations using Time-Lapse
Have students set up the GoPro to capture a time-lapse of plant growth, weather changes, or water movement, exploring STEAM concepts like environmental science and patterns over time.

Intermediate

Engineering Design Process Video
Students document the design, building, and testing phases of a STEM project (e.g., building a bridge or robot), reflecting on their process and identifying areas for improvement.

Advanced

Physics Experiment in Motion
Physics Experiment in Motion
Students design buttons to promote social causes, events, or campaigns, integrating persuasive messaging, design and manufacturing principles.

Extension Activities:

Environmental Impact Analysis with Data Visualization
Building on the beginner time-lapse activity, students use the GoPro to document environmental changes over a longer period, such as monitoring water levels in a stream, tracking litter accumulation in a specific area, or observing seasonal changes in a school garden. After capturing the footage, students analyze their recordings to collect qualitative data, such as changes in color, flow, or volume. They then combine their observations with quantitative data from other sources (e.g., rainfall measurements or temperature readings) to create charts or presentations. This activity helps students integrate environmental science with data analysis and communication skills.

Advanced Engineering and Motion Study
Building on the intermediate and advanced activities, students use the GoPro to record and analyze complex motion in an engineered system, such as a trebuchet launching a projectile, a Rube Goldberg machine in action, or a drone flight path. They use the footage to extract data (e.g., time stamps, distances, or angles) and apply STEM concepts like energy transfer, velocity, and acceleration. Students can enhance this analysis by pairing their GoPro footage with coding tools or simulation software to model the motion digitally. This activity deepens their understanding of physics, engineering design, and computational thinking.

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Learning Extensions

STEAM Connections: Observation - Technology - Science

Learning Objectives:

- Learn to operate the camera, manage files, and use features like time-lapse and slow motion
- Collect and analyze data, presenting findings through videos, charts, or graphs
- Develop communication skills through visual storytelling
- Troubleshoot and reflect on footage to enhance problem-solving and critical thinking
- Use the GoPro as a powerful tool for hands-on STEM learning

Career Connections:

- Environmental Scientist – Studies the environment and develops methods to address environmental issues.
- Media Producer – Oversees the production of content, including video, audio, and digital media, for various platforms.
- Drone Operator – Operates drones to capture video footage or collect data for various industries like media, agriculture, and surveying.
- Data Analyst – Analyzes data to help organizations make informed decisions and visualize trends.

Essential Employability Skills:

- Communication
- Adaptability
- Time Management
- Planning
- Organization
- Teamwork
- Problem Solving
- Technology Literacy

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Resources and Accessibility

Safety Guidelines

- **Avoid Tripping Hazards:** Be mindful of cords, mounts, and camera setups to prevent falls.
- **Avoid Hazardous Areas:** Keep students away from moving machinery or unsafe locations.
- **Use Proper Mounting Gear:** Secure cameras on stable surfaces or wearables to prevent accidents.
- **Protect Eyes and Skin:** Avoid direct eye contact with the camera's bright screen or lens.
- **Follow Manufacturer Instructions:** Always use the camera and accessories as directed to ensure safe operation.

Accessibility

- **Adaptive Mounting:** Included are various adjustable mounts or mounts that can be easily attached to various surfaces or other personal devices for students with mobility challenges.
- **Voice Control:** Use the GoPro's voice control feature to allow students with limited hand mobility to start/stop recording or change settings.
- **Visual Aids:** For students with visual impairments, use audio cues or provide a sighted assistant to help set up and navigate the camera's functions.
- **Collaborative Work:** Pair students with and without accessibility needs to foster teamwork, allowing everyone to participate in different aspects of the project (filming, analyzing footage, etc.).

Library Catalog

Library Resources

Feedback

QR to feedback survey