



GRIT Camp Education Lead Guide



Last Revised: September 17th, 2026

GRIT Camp Role Recap

Host: *The individual or company organizing and supporting the GRIT Camp.*

Host Facilitator: *Owns camp-day operations.*

Education Lead: *A trained tradesperson who is the instructional leader for the GRIT Camp.*

Mentor: *A trained tradesperson directly coaching 1–2 Students throughout the camp.*

Volunteer: *An individual helping with event-day logistics and general assistance, not education.*

While Students are given identical Blueprints, the goal of a GRIT Camp is **NOT** for them to create perfect, identical projects. GRIT Camps have three main objectives:

- Students see the skilled trades as real career options worth considering
- Students gain respect for skilled work even if they choose another path
- Mentors leave reminded that their skill, example, and patience have value

The **Education Lead** plays a direct role in accomplishing these objectives. In many of our GRIT Camps, this person is Ty Branaman. He leads the introduction, safety briefing, lunch lessons, and the day's conclusion.

However, if Ty is not available or there is a prospective Mentor who could fit the role, the Host may choose to appoint their own Education Lead. This quick guide will help Hosts understand what an Education Lead does AND help Education Leads step into the role with confidence.

What the Education Lead Owns

The Education Lead is the one who really keeps the camp educational and moving along. This individual has a unique role that sets them apart from the Host and Mentors:

- **The Host** provides the site and does most of the material preparations
- **Mentors** supervise and guide their assigned Students through the modules

The Education Lead makes sure the Mentors are ready to teach, the major sessions have a clear purpose, and the science stays connected to the trades. The Education Lead is a separate role and is not a paired Mentor, saw-area supervisor, or floater. They focus on coaching Mentors, closing instructional gaps, and leading the lunch sessions. To do this, they:

- Prepare the facility with the Host
- Set the instructional pace and manage the day's flow
- Coach the Mentors before the GRIT Camp
- Frame the value of the trades during the introduction and throughout the camp
- Lead the safety briefing and enforce safe practices
- Keep discovery alive during lunch with deliberate, discovery-oriented lessons
- Walk around and ensure that the Mentors' involvement meets quality standards

- Close the day with meaning

This individual also sets and enforces the **GRIT Teaching Standard** for Mentors to follow for the entirety of the GRIT Camp:

- Ask before explaining and give Students time to think
- Demonstrate only enough to unlock the next safe attempt
- Return the tool or decision to the student so that they have the final say
- Use plain language first, then give the real trade or science term
- Let safe mistakes become part of the lesson
- Keep speeches short and let the Students work with their hands

How the Education Lead Interacts with Other Roles

The Host is the one who takes ownership of the site, people, materials, timing, food, check-in, pickup, and current camp requirements. A Host Facilitator may help by owning the physical camp operations on the ground. The Education Lead supports these individuals by:

The Host Facilitator and Education Lead may adjust pacing, activity order, layout, and selected activities to suit the people and conditions on the day. Accommodate preferences wherever practical; when they conflict, the on-site leader responsible for that area makes the decision and tells the people affected. Keep safe tool use and direct supervision in place. These guides provide practical defaults, not a script for every situation.

Confirm the named attendee behavior support adult with the Host Facilitator: someone experienced with children and comfortable setting firm, respectful boundaries. Tell Mentors whom to call; pause unsafe participation and maintain supervision while help arrives.

- Finding gaps in the current plans
- Agreeing on workable pivots when something won't work out
- Handling the safety and lunch sections
- Planning through activity transitions
- Protect the final 90 minutes for electrical learning, customization, photos, and pickup. For a 3:30 PM finish, aim to start electrical by 2:00 PM, move to customization at 2:50 PM, and begin final photos and closing at 3:15 PM. The Education Lead calls transitions with the Host Facilitator. Adjust these targets for the camp; shorten earlier optional activities if needed rather than rushing safety or removing the electrical lesson.

Mentors are the ones who provide direct guidance as the Students work through the Blueprint. The Education Lead supports Mentors by:

- Conducting the site walkthrough in the hour before camp
- Setting the teaching standard
- Observing the camp and reinforcing the teaching standard throughout the day



Preparation BEFORE Camp Day

The Education Lead truly jumps into action **2 hours** before the GRIT Camp begins. However, **at least one week prior** to camp, the Education Lead must communicate with the Host Facilitator about:

- Camp logistics
 - Camp start time
 - Student and Mentor counts
 - Project sequence
 - Lunch window: 45–60 minutes for the meal and module together
 - Finish time
- GRIT Camp day controls
 - The current Blueprint
 - Mentor Quick Start Guide
 - General GRIT Camp Guide that will control the day
- Tool & material types, substitutions (if applicable), and availability confirmation
 - Saws
 - Drills
 - Bits
 - Electrical kits
 - Tubing and pipe tools
 - Joining equipment (i.e., torch and alloy types)
- Torch type and joining process for brazing and/or soldering
- Planned lunch demonstrations and schedule
- Final box customization materials
 - Safety or instructional considerations



The Education Lead should also prepare their own bag:

- ☐ Select printed materials with a pen or marker:
 - ☐ Mentor Quick Start Guides
 - ☐ Current Blueprint
 - ☐ Mentor assignments
 - ☐ Camp schedule
- ☐ One complete Student toolkit for the Mentor coaching walkthrough
 - ☐ 6-in-1 screwdriver
 - ☐ Tape measure
- ☐ Material samples
 - ☐ Lumber
 - ☐ Fasteners
 - ☐ Pipe or tubing
 - ☐ Electrical kit
- ☐ A tested lunch demonstration kit and backup options
 - ☐ Towels
 - ☐ Spare batteries
 - ☐ At least one no-power backup demo (see the **GRIT Camp Lunch Guide**)
- ☐ A timer
- ☐ A few prepared questions for the opening, lunch, and closing
 - How and why the trades have value in society
 - How the trades connect to scientific principles



120–60 Minutes Before Camp

The Education Lead **MUST** be at the facility at least **2 hours** before the GRIT Camp's start time.

During the first hour, they will walk the site with the Host with all of the Stations and Staging Areas set up. They can assess the camp's readiness, determine any last-minute changes, and get a real feel for how the Students and Mentors are going to move through the modules.

Here is a basic checklist of items to verify and when these verifications generally occur:

120–110 Minutes to Camp: Verify Room & Project Flow

- ☐ Understand site layout
- ☐ Walk the path between activities to understand the day's flow
- ☐ Verify Station locations and orientations
- ☐ Verify Staging Area locations
- ☐ Understand the lunch space and how food service will work
- ☐ Make sure any additional modules have been communicated to Mentors

110–95 Minutes to Camp: Verify Woodworking Safety & Tools

- ☐ Sufficient saw capacity for the Student count
- ☐ Each saw has fences, guards, tables, and clamps set for the planned cuts
- ☐ Enough suitable cords and outlets for the actual layout without causing traffic flow issues
- ☐ Clear practice in place that saws remain unplugged when they are not in active use
- ☐ Correct drill bits and drivers, especially the Forstner bit required by the current Blueprint

- ☐ Charged drill batteries and a charging or battery-swap plan

95–80 Minutes to Camp: Material Check

- ☐ Lumber and luan backing match the Blueprint types and Master Material List
- ☐ All fittings match the Blueprint and Master Material List
- ☐ Tubing diameter matches the Blueprint
- ☐ All cutting, deburring, and swaging (optional) tools are available and suitable
- ☐ Host has the complete Student kits, including the 6-in-1 screwdriver, which the Mentors will unpack with students
- ☐ Check for any deviations from the Blueprint or Master Material List and commonly missed items

80–70 Minutes to Camp: Joining & Electrical

- ☐ Exact brazing and/or soldering processes have been communicated to Mentors
- ☐ Electrical meters and kits checked with one known-good circuit
- ☐ Check for any deviations from the Blueprint or Master Material List and commonly missed items

70–60 Minutes to Camp: Lunch & Final Customization

- ☐ Lunch demonstrations have been tested
- ☐ All small parts of lunch demonstrations are staged in use order
- ☐ Final customization craft items are staged and ready to be put out at the end

If the need for ANY changes to the camp order or Blueprint arises, **do not hide it from the Mentors when they arrive.**

Communicate any camp-day changes clearly to Mentors before they guide Students. If a change affects the project dimensions or assembly, mark the correction on every Blueprint in use; routine pacing or layout changes do not require rewriting the guides.

The 60 Minutes Before Camp: Mentor Walkthrough

It is the Host's responsibility to communicate that Mentors and Volunteers are required to arrive **at least 1 hour before camp.**

While Volunteers help with last-minute setup, Mentors are required to attend a mandatory prep meeting with a site walk. This meeting is a practical rehearsal of how Mentors should guide the Students through the Blueprint, and Mentors should bring their **Mentor Quick Start Guides** with them and follow along.

Here is how that meeting will typically go (specifics are in the **Mentor Quick Start Guide**):

60–50 Minutes Before Camp: Logistics, Flow, and Last-Minute Changes

- Mentors will understand the order of the modules, including where to go and when
- If the Host chose to build a sample, use it to show the goal; otherwise walk through the Blueprint and guide photos. A sample build remains optional.
- Mentors understand how Student pairings will work
- Discuss any changes to the plan; explain and show the alternative

50–40 Minutes Before Camp: Socratic Method

- Rehearse the Socratic method with Mentors using the 4-step framework:
 1. **Observe:** Ask the student to describe what they see, measure, or expect.
 2. **Ask one question:** Use one what, where, how, or why question.
 3. **Wait:** Give the student enough silence to think, inspect, and try.
 4. **Nudge:** If they are stuck, reduce the size of the problem. Point to the Blueprint, a meter reading, or a reference edge instead of giving the answer.
- Give the Mentors Socratic method role-play scenarios of common camp situations:
 - Students not knowing where to place the saw blade on their marked board
 - Electrical circuits that won't light
- Debrief each role-play scenario: "What helped the Student discover the next step?"

40–25 Minutes Before Camp: Student Kit & Blueprint Rehearsal + Carpentry

- Review the Blueprint and confirm understanding
- Review PPE and expectations for PPE use throughout the camp
- Take apart the 6-in-1 screwdriver and practice how to talk about it with Students in a way that encourages discovery
- Look at the tape measure and understand how to help Students discover it
- Have Mentors role-play commonly missed teaching moments (on the next page and in the **Mentor Quick Start Guide**):
 - How to use the different orientations on the Blueprint throughout the project
 - Nominal vs. actual size (2" x 4" vs. 1.5" x 3.5")
 - How to do math on the Blueprint
 - Cutting on the waste side of the line
 - How saw blade kerf affects cuts
- Look at the saw blade thickness and practice using a clamp to hold the wood in place safely
- See where the drill bits are, how they attach & work, and discuss how to get Students to think about positioning their bodies for easier drilling

25–15 Minutes Before Camp: Pipefitting & Torch Work

- Confirm the current work sequence
 1. Cutting and gluing PVC
 2. Cutting and deburring copper
 3. Fully seating and brazing or soft-soldering copper to the adapter

4. Checking the joint and making adjustments
 5. Joining the tubing in the center of the box
 6. Capping the copper or swaging (as decided by the Host)
 7. Applying the backing board AFTER checking all the work
- Confirm whether aluminum repair will be part of the camp (and the rod & flux kit)
 - The Host selects optional modules and lunch demonstrations in advance with the Education Lead. Their materials and staffing are required only when selected. On-site leaders may adapt that selection when time, materials, and competent supervision permit.
 - Review the chosen torch or joining method & alloy/solder and confirm competency
 - Show the back panel and make it clear it only goes on AFTER the pipework has been checked against the Blueprint and confirmed to be correct
 - Rehearse Socratic-style questions that keep the Student engaged

15–5 Minutes Before Camp: Electrical

- Use the meters and verify that they are working
- Rehearse Socratic discovery of voltage and current
- Rehearse Socratic discovery of series and parallel circuits

5 Minutes Before Camp: Final Questions

- Know where to stand
- Mentors know what to say first and how to introduce themselves
- Mentors know how and whom to ask questions without abandoning their Students

Coaching: Commonly Missed Teaching Moments

There are several small teaching moments that many Mentors miss. The Education Lead should go over these with Mentors before camp.

The concepts behind these teaching moments are explained in the **Mentor Quick Start Guide**, which Mentors should have reviewed beforehand. The Education Lead's job is to give a brief overview and reminder of these concepts.

6-in-1 Screwdriver

Before starting any of the actual work on the Blueprint, Mentors can ask Students to take apart their 6-in-1 screwdrivers.



Make the Students:

- Pull it apart
- Turn the shaft
- Inspect both removable bits
- Count the functions

Ask the Students:

- What parts come out?
- What changes when you reverse this piece?
- Where are the nut drivers hiding?

That is how they learn that a single tool can be useful in a few different scenarios.

Using the Blueprint

Mentors will have had a chance to review the Blueprint well in advance and should already know the dimensions of the final cuts, but it will be the Students' first time seeing it.

Mentors should point students back to the drawing and help them try to figure out how the views and dimensions will help them fill in the blanks. They should **NOT** give Students the dimensions.



Make the Students:

- Read the Blueprint before starting any work
- Refer back to the Blueprint when they have trouble

Ask the Students:

- Which view tells us what this should look like?
- Which number gives us some information about how to cut or drill this piece?
- From which edge are we measuring?

Actual vs. Nominal Lumber

Introduce the 2x4 by its common nominal name. Then, when the Students grab theirs, Mentors can lead them to discover that the lumber size isn't always what it seems, which matters when we're building.



Make the Students:

- Use their tape measure to measure the width and thickness
- Write down what they measure

Ask the Students:

- What does the tape say?
- Is that the name of the board or its finished size?
- Which dimension does the Blueprint use here?

Where to Cut the Wood

The saw removes material (kerf), and Students need to be mindful of that when cutting.



Make the Students:

- Write down which side is the “keep” side and which side is the “waste” side
- Pull the saw blade down WITHOUT power to verify where they’re cutting
- Measure the cut wood and verify it against the Blueprint

Ask the Students:

- Which piece are we keeping?
- If the blade eats this much material, where should the blade go?
- What will we measure after the cut?

Torch Work

Mentors must know and be confident with the torch method and materials used in their GRIT Camp. Those details will hold the answers to commonly missed teaching moments.

If your camp is doing aluminum repair and the process differs from the copper joining process, make the contrast CLEAR. Do not let Mentors improvise one method from memory.



Make the Students:

- Look at the materials in front of them and think through how each item helps the pipes fit together (or patches holes)

Ask the Students:

- What has to be clean?
- Where should the heat go?
- What tells us the joint is ready?
- What do you notice about how heat moves through the metal?

Meaningful Design Choices During Final Customization

The final customization module will vary significantly from camp to camp. However, if time and materials permit, Mentors can encourage Students to make a practical design choice, including:

- Dividers
- Access panel
- Pocket (for tools or pencils)

Ask the Students:

- What problem should this added piece solve?
- Where does it need a fold, slot, or tab?
- How will you test the fit before attaching it?

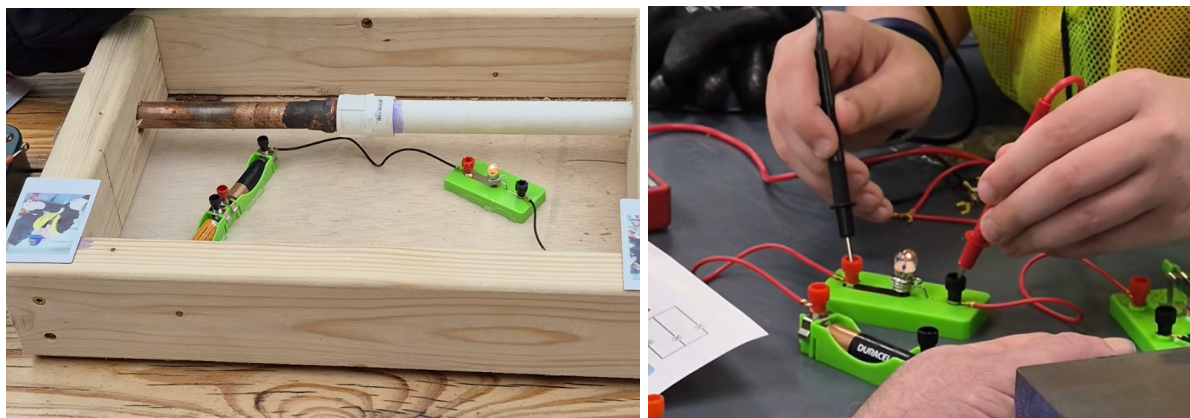
Coaching: Electrical Concepts

The Blueprint has the exact sequence of the electrical module. Mentors and Students should not get lost in the sequence if they refer to the Blueprint.

However, Mentors who are unfamiliar with teaching electrical concepts or working with this particular kit may struggle to support their Students through the discovery process. To help the Mentors during the pre-camp meeting, the Education Lead gives them:

- A simple teaching model with working circuits
- Enough meter practice to guide discovery

If Mentors need practice, they can use a practice circuit to examine its structure and practice positioning their meter leads. A finished sample box may be used if the Host chooses to build one. The sample build is optional, and the Host decides whether and when to complete it and provides its materials.



The Teaching Model

In plain language, here are the concepts at play and what we want to impart to the Students:

Idea	Plain-Language Explanation	What Students Can Observe
Voltage, volts	Electrical potential difference between two points. “Electrical pressure” can be a useful analogy, but it’s not literally pressure.	A meter reads across two points, such as the two battery terminals.
Current, amps	The rate at which electric charge moves through a complete path.	A lamp lights only when there is a closed path. More load usually changes the current drawn from the source.
Resistance, ohms (Ω)	Opposes current. Loads, such as lamps, use electrical energy and have resistance.	An unpowered component or path can be checked for resistance or continuity with the meter.
Circuit	A source, a complete path, and a load. A switch opens or closes the path.	A single loose connection or open switch can stop the whole series path.

This teaching model extends to the series and parallel batteries and loads (lamps/bulbs):

Load Connection	What Stays or Changes	Discovery Questions
Series	Series lamps share the supply voltage and are usually dimmer. One open connection stops the whole path.	“What do you think will happen to the brightness when it’s on?” “Why did all the lamps go out when you disconnected that one spot?”
Parallel	Parallel lamps each receive about the full supply voltage. One open branch can leave the other branch working.	“What do you think will happen to the brightness when we turn this on?” “What happened after you disconnected one part? Why did it stay on?”

Battery Connection	What Stays or Changes	Discovery questions
Series	Connect positive to negative to add voltages. Two fresh 1.5 V cells should measure about 3 V with no load.	“What reading do you predict before we touch the probes?” “Why did the voltage add?”
Parallel	Connect positive to positive and negative to negative. Voltage stays near one cell, while available capacity and current capability can increase when matched cells are used correctly.	“Why is the reading still about 1.5 V? What changed even though the voltage did not?”

Meter Use Guidelines to Enforce

1. Inspect the meter and leads. Black lead goes to COM. Red lead goes to the voltage and resistance jack for the camp activities.
2. Set the meter to DC volts for batteries and the low-voltage camp circuit. Choose a range above the expected reading if the meter is not autoranging.
3. Voltage: Position the leads to measure across two points. The circuit does not need to be opened to make a basic voltage measurement.
4. Resistance or continuity: Remove power first and test the component or path according to the meter instructions.
5. Do not move the red lead to the current jack or attempt an amp measurement.

Camp Day Sequence

The full camp day sequence is covered in the full **GRIT Camp Guide**. We will focus specifically on the Education Lead's role and where they will have specific objectives.

Opening

The Challenge Introduction and Safety Briefing form one combined opening session. Target 8–10 minutes in total while covering all required safety points before work begins. Give Students a reason to care about the trades and help them connect with their Mentors.



Sequence:

1. Welcome students and get them excited to do real work with their hands.
2. Ask two quick questions:
 - a. "Who built the room we are standing in?"
 - b. "Who keeps it working?"
3. Name the trades as applied science, practiced skill, judgment, and service.
4. Explain that a trade isn't just a job. It can be a rewarding career, a business path, a foundation for engineering or management, or a skill set that serves a person for life.
5. Introduce Mentors as people who practice these skills and will help Students discover them. They will **NOT** do the project for students.
6. Preview the project, such as by showing a finished model or letting the Students see the drills or unplugged, guarded saws, and move directly into the camp safety briefing.

The handoff to the safety briefing is direct: **"Before we get started, we're going to learn the camp rules that will keep us safe while we work."**

Keep the Students together through the combined introduction and safety session, moving to the safety area together if necessary. Announce Mentor–Student pairings after the session and before work starts, allowing time for late arrivals.

Safety Briefing



In most cases, the Education Lead will present the safety briefing. Please consult the **GRIT Camp Safety Guide** and teach the material using the scripts, concepts, and examples within.

If the Education Lead is NOT leading the safety portion, they are responsible for the handoff within the combined opening session. The Host Facilitator then announces Mentor–Student pairings before work begins.

During the Modules

The Education Lead is primarily a coach and a timekeeper during the actual camp modules. They are NOT a typical Mentor who stays with a couple of Students and helps them.

As a coach, their job is to walk around the work area and ensure that Mentors are guiding their Students without doing the work for them, asking solid Socratic questions, and following the camp rules.

Here are five questions the Education Lead must ask themselves constantly:

- Are Students using the tools, reading the Blueprint, and making the decisions?
- Are Mentors asking questions or giving a running monologue?
 - Questions = Good
 - Monologue = Needs Work
- Are Students measuring the actual materials and checking their completed work against the Blueprint?
- Are Mentors skipping the electrical discovery because they are uncomfortable with it?

- Is the pace leaving time for the lunch session, final configuration, cleanup, and closing?

If you notice any issues in these five areas, here are some solutions:

What you see	Quiet Coaching Prompt for the Mentor
Mentor taking over	“What question could put that decision back in the student's hands?”
Student stuck	“Show me where the Blueprint gives us a clue.”
Repeated measurement errors	“Which edge is the reference, and which piece are we keeping?”
Electrical step being rushed	“Pause and have [the Student] predict the meter reading first.”
One Mentor found a better explanation	Ask for permission to share the question or demonstration with the other Mentors. Do so with permission.

If multiple groups encounter the same issue, get *everyone's* attention and solve the issue for the group.

Lunch Lesson



The Education Lead and Host will have decided which demonstrations to show during lunch. Allow 45–60 minutes for the meal and module together. Now is the time for the Education Lead to carry out the selected demonstrations. The sequence is basic:

- Let the Students eat
- Introduce a few scientific discovery items with demonstrations
- Leave plenty of time for the Students to interact with the discovery items
- Repeat the same demonstrations but change one variable
- Compare the prior and latest demonstration results and ask questions

During the last 10 minutes, the Education Lead may hand off the role to someone else and eat.

The exact timeline and individual demonstrations are detailed in the **GRIT Camp Lunch Guide**. Please consult that guide for details on safety, procedure, and applied lessons.

Closing the Camp

The closing should be brief, only about **3–5 minutes**, and should NOT be a speech. The goal is for Students to recognize what they've accomplished and feel connected to the larger purpose.

Sequence:

1. Gather Students with their projects and Mentors.
2. Ask one or two Students what was harder than it looked or about some concepts they can now explain.
3. Name the specific tasks Students actually accomplished.
4. Thank the Mentors, Host, Volunteers, and Students briefly, as well as any sponsors.
5. Move directly into the group photo, exit interviews, cleanup, or pickup plan.

Post-Camp Debrief

After the Students and their parents leave, gather the Mentors, Host, Host Facilitator (if there is one), and any GRIT staff.

Lead a 10-minute discussion that identifies:

- Where Students became confused, disengaged, or especially curious
- Which Mentor questions or demonstrations worked best
- Which materials, bits, tools, or station pieces were missing or hard to share
- Where the Blueprint or Quick Guide should be clearer
- Which lunch demonstrations worked and which explanation needs revision
- One change to make before the next camp



Thank you for considering becoming an Education Lead for your local GRIT Camp!