



Exploring Coding Steps: A Photon Adventure



THIS TRAIL MIX INCLUDES A COMBINATION OF: Computer Science, Mathematics, Language Arts and Future Ready Skills. Students will develop a foundational understanding of the importance of following steps in a coding process, be able to apply it to a robot and also develop problem-solving, collaboration, and sequencing skills.

DESTINATION

- Beginning coding skills
- Understanding steps in a process
- Sequencing
- Problem-solving
- Collaboration

GEAR

- Book: [“Tom Traferatops and Friends Learn about Coding and Future Ready Skills”](#)
- Photon Robot
- [Practice Coding Grid](#)
- [Cards with arrow commands](#)
- [Photon EDU app- “Badge”](#)

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Motivation: Read or review the book, [“Tom Traferatops and Friends Learn about Coding and Future Ready Skills”](#). Explain to students that like in the book, today they will be exploring the concept of steps in a coding process, but will be using Photon robots to do so. Engage students by asking questions like, “Have you ever followed a set of steps to complete a task?” An example may be asking how they get ready in the morning. Introduce the concept of coding as a set of steps that tell a computer or robot what to do.

Activity: Similarly to the book, students will lead the Photon robot on a ‘Treasure Hunt’, first offline using a paper map and arrow cards, and finally with the actual Photon robots, if available. Divide students into groups of two and give each group a [grid](#). Students can designate a starting point and where to put the treasure at the other end. Teachers should demonstrate using [arrow cards](#) to give instruction on how to code the robot. Explain the meaning of each arrow card: forward, backward, turn left, and turn right. Remind students of the concept of steps in a process for guiding the coding robot. Distribute arrow cards to the students and instruct students to take turns as the ‘programmer’ and the ‘robot’. The ‘programmer’ selects an arrow card, shows it to the ‘robot’, then places it on the map. The ‘robot’ follows the instructions on the arrow card and moves accordingly across the map toward the treasure. Encourage discussion and planning of steps between students.

Product: Once students have successfully taken turns guiding their ‘robots’ offline, they can be introduced to the [‘Badge’ component](#) of the Photon EDU app. Students can take the big [‘Treasure’](#) card, place it somewhere on the floor of the classroom and work together to code their Photon robots to reach it using the skills they have developed with the offline activity. Students should showcase their different working codes to the rest of the class when finished.