



A learning log is a tool that students use during the project to keep track of their questions and learning generated through their research. Sustained Inquiry is integral to high quality PBL. If we scaffold the research process, students' reflections can lead to meaningful questions which are used to drive learning throughout the project. A learning log could be something as simple as the following table to the right.

QUESTION(S) I HAVE	RESOURCE I AM USING TO ANSWER QUESTION(S)	WHAT HAVE I LEARNED (WHICH MAY NOT BE AN ANSWER TO THE QUESTION!) & DATE THAT I LEARNED IT.	FURTHER QUESTIONS I THOUGHT OF AS A RESULT OF MY RESEARCH

WHY IS IT USEFUL?

Students at every grade level can improve on their research skills. We often take for granted that older students come to us understanding how to research well. Scaffolding this process for students is essential to sustained inquiry. So is keeping track of student learning throughout the project. We want to monitor the development of students' understanding of key knowledge, catch misconceptions, and identify new need to know questions as they come up to ensure students are making progress on the standards and toward the final product. Consistent check-ins with students about their learning log allow you to move deeper if students show you they are mastering concepts quickly. Conversely, learning logs let you know when whole groups or small groups of students are completely confused so you can plan mini-lessons or pull groups aside accordingly.



WHAT DO I DO?

The following process would be done with the each student working individually.

STEPS

1. Share a blank learning log with students. Ask them to identify one need to know question that most interests them. Using the resources available for the project, give students 15 minutes to begin researching that question.

INSIGHTS/SUGGESTIONS

- Learning logs are most useful if they are individual to the student.
- You can adjust the time based on the length of your class period.

STEPS	INSIGHTS/SUGGESTIONS
<p>2. After 15 minutes, have students pause their research.</p> <p>Ask two to three students to share their research. Ask:</p> <ul style="list-style-type: none"> • What question did you start with? • What did you learn in answer to that question? • What new question(s) do you have now? 	<ul style="list-style-type: none"> • You could ask for volunteers or call on students randomly to share their learning. If you call on students randomly, which can be a way to build accountability into the process, make sure to let students know that you will do this as they begin their research.
<p>3. Give students another 15 minutes to continue researching.</p>	
<p>4. Pause students again. Ask two to three different students to share their learning using the same process and questions as in step 2.</p>	<ul style="list-style-type: none"> • You could also have students pair up to share out their learning. • At the end of the period or cycle, students could also get together in their groups to share their takeaways.
<p>Repeat the process for as many times as appropriate for your students in a single period or throughout the project.</p>	<ul style="list-style-type: none"> • For older students, this process could be the focus of several days of work.

PRIMARY GRADES CONSIDERATIONS

Pre-K to first grade, learning logs will need to be simplified and filled in with you. See one possible example below. Research at the younger grades requires intentional planning and use of whole group readings, guided reading strategies, and literacy stations to help students get the most out of the project.

WHAT DO I THINK I KNOW?	WHAT DO I WANT TO KNOW?	HOW DO I LEARN THIS?
<p>I WANT TO KNOW _____.</p> <p>HOW DO _____?</p> <p>WHAT DOES _____?</p> <p>WHY IS _____ SO _____?</p>	<p>I KNOW _____ ABOUT _____.</p> <p>I KNOW _____ ABOUT _____.</p> <p>I KNOW _____ ABOUT _____.</p>	 <p>BOOK EXPERT MY TEACHER COMPUTER MY FRIEND OTHER</p>

USING IT THROUGHOUT THE PROJECT

The learning log process outlined earlier could be used immediately after launching the project once you've completed the entry event and have a need to know list. This can be a powerful process to jumpstart the learning. If done before teams are formed, it also allows each student to come to the teamwork aspects

of the project with their own base of knowledge to offer the group. You could also use this process after groups have been formed to scaffold research once you are deeper into the project. The questions that students research might be determined by the group if there are things students need to address in their project work. If students used a learning log to track their research including the sources, a learning log is a tool students can refer to to cite their sources.

TROUBLESHOOTING TIPS



Students are not going deep enough in their research.

Early in the year or as students engage in Project Based Learning for the first time, you may need to model what effective research looks like. You could create mini-lessons to pick apart aspects of meaningful research and inquiry, modeling how students use their questions to explore the topic. You could create workstations to ask students to work on specific aspects of research. One could be comparing and **evaluating sources** for viability; another could be a writer's workshop so students can craft the actual written research or bibliography; another might be actually conducting research via sources you've gathered for students; still another is citing sources correctly. However you craft the inquiry piece, you will need to model your expectations with students regardless of their age.



Students are only using Wikipedia and weak sources like it to research.

The mini-workshop or workstation suggestions in the previous challenge could help address this as well. Also consider creating a **Google Custom Search Engine** or **Symbaloo** that has specific, pre-verified sites already set up for students to access. Google Classroom is another tool that allows you to post resources that will help students dig deeper. These take time on the front end to create but will ultimately lead to higher quality learning and final products.



Students aren't taking the research seriously.

Be sure you are using your product rubrics regularly (see the Using Rubrics strategy). Introduce the product rubric early and walk through it with students. Allow them time at the beginning of the project to review the indicators, one by one, having students take notes and ask questions. Particularly if your students are younger, read through the rubric with them early and often. Once will not be enough—regardless of the age of your students.

If expectations via your rubric aren't enough to make students take it seriously, then you might need to reflect on the purpose of the research they're doing. Is it getting to the heart of what you want students to learn in your project? If not, then consider how to restructure the products and expectations of the project moving forward so your students are diving deeper and making meaningful connections in their learning.