

MISSION 12 Remix
Time: 45-60 minutes
Overview:

This remix will allow students to use their creativity to create their own project. They will use concepts from mission 3 through mission 12. They will create a program that incorporates loops, button presses, if statements, variables, and output such as images, lights or sound.

Cross Curricular:

- **MATH:** Review the math for scaling the digital reading to a brightness, and the need to reverse the number.
- **SCIENCE:** Use the light sensor in an experiment, following the scientific method.
- **LANGUAGE ARTS:** Similar to game spinner, use CodeX as a selection tool. The amount of light can display different poems, or words as sentence starters, colors for mood, etc.
- **FINE ARTS:** Students display different colors or images depending on the amount of light it receives.
- Supports **language arts** through peer review and reflection writing.

Materials Included in the folder [Elementary Remix Projects](#):
Remix 12 Sliddeck

The slide deck is for teacher-led instructions that let you guide students through completing a remix using the slides. There are no instructions for a remix in CodeSpace. The slides give instructions, with simplified language that is chunked into small sections at a time. The information is shown on slides with "Step #". The tasks to complete are on slides with "Do This".

Remix 12 Workbook

The workbook can be used instead of slides for student-led or independent work. It is an alternative to the slide deck, with simplified language that is chunked into small sections at a time. Each step is on its own page. The tasks to complete are labeled "DO THIS" and have a robot icon next to it.

Remix 12 Log (digital and print)

This remix log is the worksheet for students to complete as they work through the remix. It should be printed and given to each student at the beginning of the lesson. They write on the remix log during the assignment and turn it in at the completion of the remix.

[Remix 12 Lesson Plan](#)

There is a lesson plan for the remix. It includes a suggestion for the remix and rubric. For additional ideas, hints and helps, use the information below.

[Remix 12 Solutions](#)

Four suggestions are given for remix projects. Solutions are given for each suggestion (mild, medium, spicy)

Additional Resources:

- **Remix Videos:**
[Mild-1](#), [Med-2A](#), [Med-2B](#), [Spicy-3](#)
- [Kahoot \(Mission 12\)](#)

Formative Assessment Ideas:

- Remix log completion
- Completed program
- Gallery walk
- [Kahoot Mission 12 Review](#)

Vocabulary: No new vocabulary for this remix.

Preparing for the lesson:

Students will use the Codex throughout the lesson. Decide if they will work in pairs or individually.

- Look through the slide deck and workbook. Decide what materials you want to use for presenting the lesson. The slide deck can be projected on a large screen. The workbook (if used) can be printed or remain digital through your LMS or Google.
- Be familiar with the Remix Log (assignment) and the questions they will answer.
- Print a copy of the Remix Log for each student, or prepare to give digitally.
- Look over the remix solutions so you can help students as they create their own remix.
- Have flashlights handy for testing.

Lesson Tips and Tricks:

Teaching tip:

You can use a variety of discussion strategies to get the most engagement from your students. For example, you can have students write their answers before asking anyone for an answer. You can use one of many think-pair-share methods. You can have students write their answer and share with someone, and then have other students share answers they heard from their peers. You can randomly select students to answer.

Pre-Remix Discussion: Slide 2 (slides), Page 1 (workbook)

There is one question. Students can write in their log first and then share, or discuss first and then write in their log. The purpose of the pre-remix question is to get students thinking about remix possibilities.

- Mission 12 introduced the light sensor. What are some digital devices that might have a light sensor in it?

Remix Project: Slides 3-4, Page 2

These slides and pages discuss the benefits of creating a remix.

Remix Steps:

The remix is organized into 5 steps. Each step has a corresponding section on their log assignment. After every mission, there will be a remix opportunity, and each remix will go through the same five steps. This follows the design process used in many career fields.

- Each student will complete a Remix Log.
- Students can work in pairs through the lesson, or can work individually.
- Students will need the CodeX and USB cable, and optionally, 4 AAA batteries.
- Students may want a flashlight for testing the light sensor readings.

Teaching tip: Step #1 -- Review projects and concepts (slide 5, page 3)

Students open their program from the last mission and review what the program does and the concepts they learned and used. They fill out the information on their log. Take your time on this part. Let the students discuss or share their answers. OPTION: Review other missions as well; it could help the students with their creativity.




 **Teaching tip: Step #2 -- Brainstorm** (slides 6-9, pages 4-5)

Students brainstorm their remix project. Four suggestions for a remix are given: one mild, two medium, and one spicy. Students can look at a video of each finished remix. They can choose any of these, or come up with their own ideas. They can combine ideas from the suggestions to make their own, as well. They will write about their idea in the log assignment.

 **Teaching tip: Step #3 -- Make a plan** (slide 10, page 6)

Students plan the variables they need, if statements for the code, and the buttons they will write code for. Not all of these are required, but space is provided just in case. Students don't always want to plan, or see the value of planning, but it really will help them code the project. Emphasize this with the students, that this is an important part of the design process.

 **Teaching tip: Step #4 -- Code your project** (slides 11-12, page 7)

Students start a new project in CodeSpace. There isn't a mission for the remix, so students will use the sandbox. The icon for the sandbox is in the lower right-hand corner above the toolbox. Students should write just a few lines of code at a time and test frequently. They can use their code from any mission or remix, as well as the instructions from any of the missions or this lesson. They don't have to have anything memorized.

 **Teaching tip: Step #5 -- Documentation and feedback** (slides 13-14, page 8)

This step has two parts: documentation and feedback. For documentation, students should make their code readable by adding blank lines and comments. Some students are naturally good at this and may have already done it. Other students may need the reminder. The second part is to get a peer to look over the code and give feedback. The student also reviews his/her project and gives feedback. Students are encouraged to read the feedback and use it to improve their project.

 **Post-Remix Reflection:** (slides 15-16, page 9)

The project is complete and students are asked to reflect using two questions. These are thought questions, and you may want students to share their responses. This is an excellent opportunity to have a gallery walk of all the projects, or have presentations.

Solution code is given in the folder for seven remix suggestions.

 **Mission Complete:**

This mission ends with a completed, working program. This is an excellent time to have students present their project, or have students do a gallery walk around the room and play the other students' projects.

You need to decide how you will use the program for assessment. You could:

- Go to each student and check-off their code
- Have the students download their code to a text file and turn it in using your LMS
- Have students print their code (either download and then print the text file, or print a screenshot)
- Have students switch computers and run each other's code. Fill out a simple rubric and turn in to teacher
- Any other way that works for you

End by collecting the Remix Log and any formative assessment you want to include.

A Kahoot! that reviews Mission 12 is available (questions below).



IMPORTANT Clearing the CodeX:

Students should run their “Clear” program at the end of each day before returning the CodeX.

SUCCESS CRITERIA:

- Write an original program, run it, and save it to the CodeX
- Follow the design process and document their work in the log assignment
- Add readability to your program by adding blank lines and comments
- Use readings from the light sensor
- Use the readings as input and if statements in the code to determine what CodeX does
- Add functionality or something different to the original night light mission
- Debug any errors in the code
- Clear the CodeX of meaningful code at the end of the remix

Kahoot! Review

1 - Quiz

What is a light sensor?

2 - Quiz

What type of light can the light sensor measure?

3 - Quiz

What is light intensity converted to?

4 - Quiz

What code is used to read a light sensor?

5 - Quiz

What code is used to set all pixels one color?

6 - Quiz

What code will vary the brightness of pixels?

7 - Quiz

If a room light reading is 5602, what is a good value to determine if pixels need to turn on?