

This is the revised, comprehensive 12-week curriculum. It incorporates **all** of your specific feedback, additions (including new sessions), and logical constraints.

Key Changes & Features:

- **The "Report" vs. The "Packet":** The curriculum now explicitly manages two artifacts: the handwritten **Packet** (workspace/planning) and the **Digital Report** (Canva/Google Doc) which acts as the final written paper.
 - **Teacher Logistics:** Added specific steps for purchasing/leveling texts and printing digital work.
 - **New Sessions:** Added **3b** (Vocab), **10b** (Digital Drafting), and **18b** (Writing Results).
 - **Differentiation:** Phase 5 is broken down by the specific project types found in the packet.
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Logistics & Setup

- **Schedule:** 12 Weeks (24 Sessions + 3 Added = 27 Sessions total, or adjust pace to fit).
 - **Time:** 25 Minutes (5 min Mini-Lesson, 15 min Work, 5 min Debrief).
 - **Groups:** 4 Students per team.
 - **Roles (Rotate bi-weekly):**
 1. **Leader:** Reads instructions, watches timer, ensures turn-taking.
 2. **Scribe:** The only one with a pencil; writes the *group's* consensus in the packet.
 3. **Manager:** Gets the "Lab Bin" (materials) and cleans up.
 4. **Speaker:** Asks the teacher questions; reports to the class.
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PHASE 1: Immersion & Inspiration

Goal: Analyze existing successful projects before attempting one.

Session 1: The Research Team

- **Learning Target:** I can establish group norms and sign a contract.
- **Success Criteria:** Contract signed (Page 1) and roles assigned.
- **Teacher Actions:**
 1. **Launch:** Explain that scientists work in labs, not alone. Introduce the 4 roles.
 2. **Model:** Roleplay a "bad group" (interrupting) vs. a "good group."
 3. **Task:** Distribute packets. Have groups read Page 1 aloud together.
- **Student Actions:**
 - *Leader:* Reads the contract.
 - *Scribe:* Writes the creative team name.
 - *All:* Sign the contract.

Session 2: The Wonder Wall (Brainstorming)

- **Learning Target:** I can generate open-ended questions about the world and rank my interests.
- **Success Criteria:** Page 4 Checkmarks complete; Top 3 ideas ranked on sticky notes.
- **Materials:** Packet Page 4, Sticky notes.
- **Teacher Actions:**
 1. **Launch:** Read *Ada Twist, Scientist*. Focus on the word "Why."

2. **Instruction:** Direct students to Page 4 ("Pick Your Path"). Have them checkmark every interesting path first.
 3. **Activity:** "Now pick your Top 3. Write one idea for each on a sticky note."
 4. **Ranking:** Have the group vote (using tally marks) to order them from "Most Interested" to "Least Interested."
 5. **Extension:** If a group finishes early, they must write a Question on the back of their top sticky note.
- **Student Actions:**
 - *All:* Checkmark interests on Page 4.
 - *Scribe:* Writes the specific ideas on sticky notes.
 - *Leader:* Calls for a vote to rank the notes.

Session 3: The Selection & The Funnel

- **Learning Target:** I can narrow down my topic and assign research responsibilities.
- **Success Criteria:** Page 5 selected; Page 6 (Detective Work) filled with questions assigned to specific students.
- **Materials:** Packet Pages 5 & 6.
- **Teacher Actions:**
 1. **Launch:** The Funnel Method. "Space" (Too big) -> "Planets" (Better) -> "Craters" (Perfect).
 2. **Instruction:** Students select the Method on Page 5 based on their top ranking from Session 2.
 3. **Critical Step:** Move to Page 6. Students must brainstorm questions. **Teacher must ensure every student is assigned a specific question to answer.**
 4. **Share Out:** Ask the *Speaker* to stand and introduce their topic and their specific question to the class.
- **Student Actions:**
 - *Scribe:* Records choice on Page 5 and writes questions on Page 6.
 - *Leader:* Asks "Who wants to answer Question 1?" and notes the name next to the question.
 - *Speaker:* Shares the topic with the room.

Session 3b: Vocabulary Boot Camp

- **Learning Target:** I can define key research terms for my specific discipline.
- **Success Criteria:** Students correctly match word cards to definitions.
- **Materials:** Vocabulary Cards (based on Page 3), Packet Page 3.
- **Teacher Actions:**
 1. **Launch:** Review Page 3 (Words to Know).
 2. **Activity:** Sorting Game.
 - *General Terms:* Primary Source, Secondary Source, Bibliography.
 - *Specific Terms:* If they chose Science, they match "Hypothesis/Variable." If Social Studies, they match "Exposition/Economics."
 3. **Check:** Walk around and ask students to explain a word in their own language.
- **Student Actions:**
 - *Manager:* Spreads out the cards.
 - *All:* Collaborate to match the word to the definition.

Session 4: The Gallery Walk (Idea Hunt)

- **Learning Target:** I can analyze existing projects to identify necessary components.
- **Success Criteria:** 3 Examples bookmarked; Group can list the parts they need to create (Paper, Visual, Artifact).

- **Materials:** Tablets/Laptops, Page 2 (QR Codes).
 - **Teacher Actions:**
 1. **Launch:** "Do not copy! We are looking for inspiration."
 2. **Instruction:** Students scan codes on Page 2. They must find projects related to their field (Science or SS).
 3. **Task:** Identify the parts: "Where is their data? Where is their paper? What did they build?"
 4. **Constraint:** "If you like this volcano project, you must change something to make it unique. You cannot do the exact same thing."
 - **Student Actions:**
 - *Speaker:* Navigates the website.
 - *All:* Discuss: "I like how they used a bar graph," or "I like that they used clay."
 - *Manager:* Bookmarks the best examples for reference later.
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PHASE 2: The Detective Work (Research)

Goal: Learning how to find answers.

Session 5: Keywords

- **Learning Target:** I can generate specific keywords for a search engine.
- **Success Criteria:** Page 6 (Keywords) completed.
- **Teacher Actions:**
 1. **Launch:** Model Google Search. "Cats" vs. "Cat Habitat Diet."
 2. **Instruction:** Brainstorm 5 specific search terms.
 3. **Prompt:** "If you were talking to a professor, what words would you use?"
- **Student Actions:**
 - *Scribe:* Writes keywords on Page 6.
 - *Leader:* Checks that the words are spelled correctly (using a dictionary or word wall).

Session 6: Source Scavenger Hunt

- **Learning Target:** I can use text features (Index/TOC) to find information that answers my specific question.
- **Success Criteria:** 3 Sources found; "Citing Sources" drafted.
- **Materials:** Book Bins (Teacher Curated).
- **Teacher Actions:**
 1. **Pre-Work (Teacher):** Review the topics from Session 3. Gather books/articles. **Check Lexile levels.** If no appropriate books exist, print and adapt/level web articles.
 2. **Launch:** Mini-lesson on **Index** and **Table of Contents**. "Do not read the whole book. Use your keywords to find the page."
 3. **Instruction:** Students must reference the QUESTIONS they wrote in Session 3. Does this book answer *that* question?
- **Student Actions:**
 - *Manager:* Retrieves the bin.
 - *All:* Flip through indices.
 - *Speaker:* Shows the teacher: "I found the answer to Question 2 on this page!" and bookmarks it.

Session 7: Citing Sources (Digital Intro)

- **Learning Target:** I can record bibliographic information in a shared digital document.
- **Success Criteria:** Title and Author recorded in the digital report (Canva/Doc) AND Packet Page 7.
- **Materials:** Chromebooks/Tablets, Packet Page 7.
- **Teacher Actions:**
 1. **Launch:** Explain "Intellectual Property."
 2. **Instruction:** Open the **Shared Digital Document** (e.g., a Canva template).
 3. **Task:** Students must type the Title/Author into the digital doc *first*, then copy it to the Packet (Page 7).
- **Student Actions:**
 - *Leader:* Reads the Title Page.
 - *Scribe (Digital):* Types it into the computer.
 - *Scribe (Packet):* Writes it on Page 7.

Session 8: Note-Taking (Paired Protocol)

- **Learning Target:** I can paraphrase text to answer a specific question.
 - **Success Criteria:** Sticky notes placed in books/articles answering the group's questions.
 - **Materials:** Books/Articles, Sticky Notes.
 - **Teacher Actions:**
 1. **Launch: The Golden Rule:** "Read. Close Book. Think. Write."
 2. **Protocol: Paired Work.** Split the group of 4 into pairs.
 - Student A (Reader) reads the section related to their assigned question.
 - Student B (Scribe) writes the fact on a sticky note.
 - Then Swap.
 3. **Instruction:** "Leave the sticky note IN the book on the page where you found it."
 - **Student Actions:**
 - *All:* Work in pairs to find answers.
 - *Manager:* Ensures sticky notes are stuck securely.
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PHASE 3: The Writing Workshop

Goal: Synthesize notes into the "Background Research" section of the report.

Session 9: Refining Notes

- **Learning Target:** I can organize my notes and explain why they matter.
- **Success Criteria:** Packet Pages 9 & 10 completed.
- **Teacher Actions:**
 1. **Instruction:** "We are NOT throwing notes away."
 2. **Task:** Group looks at the sticky notes.
 3. **Protocol:** The student responsible for Question 1 reads their sticky note. The group discusses: "Why is this important?"
 4. **Transfer:** Scribe writes the Fact and the "Thought" (Reason) into Page 9/10.
- **Student Actions:**
 - *Speaker:* verbally explains the answer to their question.
 - *Scribe:* Copies the best version into the packet.

Session 10: Drafting Background Research (Demo)

- **Learning Target:** I can combine facts into complete sentences.
- **Success Criteria:** A draft paragraph on loose-leaf paper.
- **Materials:** Loose-leaf paper (or whiteboard).
- **Teacher Actions:**
 1. **Clarification:** This is **Background Research**, not the Abstract.
 2. **Model:** On the board:
 - Question: What do cats eat? -> Answer: Meat. -> Reason: They are hunters.
 - *Sentence:* "Cats eat meat because they are hunters."
 3. **Task:** Students take their Packet Page 9/10 and turn them into sentences on loose-leaf paper.
- **Student Actions:**
 - *All:* Collaborate to form the sentences orally.
 - *Scribe:* Writes the draft.

Session 10b: Digital Drafting / Voice Typing

- **Learning Target:** I can use technology to record my research paper.
- **Success Criteria:** Background Research section of the Digital Report is complete.
- **Materials:** Chromebooks.
- **Teacher Actions:**
 1. **Launch:** Teach **Voice Typing** tools.
 2. **Task:** Students read their loose-leaf draft from Session 10 into the computer to create the report text.
- **Student Actions:**
 - *Speaker:* Reads the paper clearly into the microphone.
 - *Leader:* Watches the screen to make sure it heard correctly.

Session 11: Peer Editing (Cross-Group)

- **Learning Target:** I can edit a peer's work for clarity and mechanics.
- **Success Criteria:** Editing marks on a printed draft (or comments on digital doc).
- **Materials:** Red Pens or Digital Commenting Mode.
- **Teacher Actions:**
 1. **Protocol: Swap Groups.** Group A edits Group B's report.
 2. **Launch:** "Editors save the day." Look for capitalization and periods.
 3. **Task:** After editing, the original group fixes the errors in their Digital Report.
- **Student Actions:**
 - *All:* Read another group's work.
 - *Manager:* Uses the red pen/keyboard to mark corrections.

Session 12: Catch-Up & Checkpoint

- **Teacher Actions: Conferences.** Visit each group. Check the Digital Report and Stamp Packet Pages 1-10.
- **Student Actions:** If ahead, look back at **Page 2 (Ideas)** to start dreaming about the display board.

PHASE 4: The Procedure (Planning)

Goal: Design the specific experiment or story.

Session 13: The "PB&J" Protocol (Whiteboard)

- **Learning Target:** I can write a detailed, step-by-step procedure.
- **Success Criteria:** A draft procedure on a whiteboard with spaces between steps.
- **Materials:** Large Whiteboards, Dry Erase Markers.
- **Teacher Actions:**
 1. **Game:** Teacher acts as a robot making a PB&J. Students must give exact commands.
 2. **Task:** Collaborative writing. Students take turns writing one step of their plan on the whiteboard.
 3. **Constraint:** Leave space between lines for revision. **Students do not start the project yet.**
- **Student Actions:**
 - *All:* Pass the marker. Take turns writing steps.
 - *Leader:* Reads the full list to check for missing steps.

Session 14: Finalizing the Plan

- **Learning Target:** I can refine my procedure based on examples and expert feedback.
 - **Success Criteria:** Packet Planning Page (14-18) completed; Digital Report Procedure section voice-typed.
 - **Teacher Actions:**
 1. **Review:** Have students look back at the **Session 4 Bookmarks** (Example Projects). "Does our plan look like the good examples?"
 2. **Stations:**
 - *Station A:* Teacher Consult (Teacher checks the whiteboard plan).
 - *Station B:* Independent Work (Transfer plan to Packet).
 3. **Digital:** Once written in the Packet, students voice-type the steps into the Digital Report.
 4. **Share Out:** Class gathers. Two groups share their plan.
 - **Student Actions:**
 - *Scribe:* Writes final plan in Packet.
 - *Speaker:* Reads plan to computer for the Report.
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PHASE 5: Action & Data

Goal: Execution. Differentiated by Project Type.

Session 15: The Experiment / Deep Dive (Day 1)

- **Learning Target:** I can execute a procedure and record data using media.
- **Success Criteria:** Activity begun; Photos/Videos taken.
- **Materials:** Chromebook Cameras, Experiment Supplies.
- **Teacher Actions:**
 1. **Launch:** "Lab Coats On."
 2. **Differentiation:**
 - *Testers (Science):* Measure variables.
 - *Builders (Engineering):* Build the prototype.
 - *Storytellers (SS):* Watch the primary source video/interview.
 - *Fixers (SS):* Survey the class or observe the problem.
 3. **Instruction:** "Take photos and videos of you DOING the work."
- **Student Actions:**
 - *Manager:* Handles materials.

- *Leader*: Reads steps.
- *Scribe*: Records raw notes.
- *Speaker*: Takes photos/video.

Session 16: Verification (Day 2)

- **Learning Target**: I can verify my results for accuracy.
- **Success Criteria**: Data collection complete; Workspace cleaned.
- **Teacher Actions**:
 1. **Prompt**: "Scientists check twice."
 2. **Differentiation**:
 - *Testers*: Re-measure.
 - *Builders*: Test the invention (Did it break?).
 - *Storytellers*: Re-watch to catch details missed.
- **Student Actions**:
 - *All*: Finish the activity.
 - *Manager*: Directs a deep clean of the station.

Session 17: Data Viz 101

- **Learning Target**: I can select the correct visual for my data type.
- **Success Criteria**: Page 19 (Selection) completed.
- **Teacher Actions**:
 1. **Mini-Lesson**:
 - *Bar Graph*: For comparing groups (Testers/Fixers).
 - *Line Graph*: For change over time (Testers).
 - *Timeline*: For history/stories (Storytellers).
 - *Diagram*: For inventions (Builders).
 2. **Task**: Groups select their visual on Page 19.
- **Student Actions**:
 - *Speaker*: Argues for the best graph.
 - *Scribe*: Circles the choice.

Session 18: Drawing the Visual

- **Learning Target**: I can create an accurate, labeled visual.
- **Success Criteria**: Page 20 completed.
- **Materials**: Rulers, Markers.
- **Teacher Actions**:
 1. **Model**: Draw a graph with *missing labels*. Ask students to fix it.
 2. **Drafting**: "Draft with pencil first."
- **Student Actions**:
 - *Manager*: Holds the ruler.
 - *Scribe*: Draws axes/lines.
 - *All*: Color.

Session 18b: Writing Results

- **Learning Target**: I can translate my data into a written summary.
- **Success Criteria**: "Results" section added to the Digital Report.
- **Teacher Actions**:
 1. **Instruction**: Students must look at their Graph/Page 20 while writing.

2. **Task:** Each student is responsible for translating one part of the "Plan" into the "Results" writing.
 3. **Peer Edit: Swap Groups.** Peer editors check: "Does the text match the picture?"
- **Student Actions:**
 - *All:* Discuss what the data means.
 - *Scribe:* Types/Dictates findings into the Report.
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PHASE 6: Synthesis & Presentation

Goal: Final Analysis and Display.

Session 19: Drafting Conclusions & Abstract

- **Learning Target:** I can use data to support a claim (CER).
- **Success Criteria:** Packet Pages 21-25 completed; Abstract written.
- **Teacher Actions:**
 1. **Launch:** "Claim, Evidence, Reasoning."
 2. **Instruction:** Students fill in the Drafting Pages (21-25) in the packet using the sentence stems.
 3. **Transfer:** Scribe writes the final conclusion into the Digital Report.
 4. **The Abstract:** "Now summarize the whole thing." Use the Abstract page (26) to draft a summary, then add it to the top of the Digital Report.
- **Student Actions:**
 - *Leader:* Points to the graph evidence.
 - *Scribe:* Writes the "Because" statement.

Session 20: Board Blueprint

- **Learning Target:** I can arrange information logically.
- **Success Criteria:** Page 27 (Layout) check-marked; Materials printed and arranged.
- **Teacher Actions:**
 1. **Prep: Teacher prints the Digital Reports** (cut into sections: Intro, Procedure, Results, Conclusion) and the Visuals.
 2. **Launch:** "We read left to right."
 3. **Task:** Arrange the physical papers on the board. **NO GLUE YET.**
- **Student Actions:**
 - *Manager:* Cuts out the text blocks.
 - *All:* Arrange them on the trifold.

Session 21: Construction Day

- **Learning Target:** I can assemble a professional display.
- **Success Criteria:** Board is glued and decorated.
- **Materials:** Glue, Borders, Markers.
- **Teacher Actions:**
 1. **The Shake Test:** "If I shake your board, nothing should fall off."
- **Student Actions:**
 - *All:* Glue and decorate.

Session 22: The Script

- **Learning Target:** I can prepare an oral explanation using sentence stems.

- **Success Criteria:** Speaking roles assigned; Script practiced.
- **Teacher Actions:**
 1. **Launch:** Provide sentence stems on index cards ("Our project is about...", "The data shows...", "We learned that...").
 2. **Task:** Assign sections: Intro (Leader), Method (Manager), Data (Scribe), Conclusion (Speaker).
 3. **Practice:** Students ad-lib using the stems + looking at their board.
- **Student Actions:**
 - *All:* Highlight their section on the board. Practice reading silently, then aloud.

Session 23: Dress Rehearsal (Peer Feedback)

- **Learning Target:** I can speak clearly and accept feedback.
- **Success Criteria:** Rubric score from a peer group.
- **Teacher Actions:**
 1. **Swap:** Pair up Group A and Group B.
 2. **Protocol:** Group A presents. Group B fills out a simple "Smile/Frown" rubric (Did they smile? Was it loud? Did they know the answer?). Then switch.
- **Student Actions:**
 - *Speaker:* Introduces the team.
 - *All:* Present their sections.

Session 24: The Showcase

- **Learning Target:** I can share my knowledge with an audience.
- **Success Criteria:** Final Reflection (Page 28) completed *after* the fair.
- **Teacher Actions:**
 1. **Event:** Host the Science/Social Studies Fair.
 2. **Closing:** After the guests leave, students return to desks.
 3. **Reflection:** Students fill out Page 28 (Metacognition) independently. "What was the hardest part?"
- **Student Actions:**
 - *All:* Present to guests.
 - *All:* Complete reflection page.