

DISCOVERY PROJECT

"Curiosity in Action"

PROJECT TITLE

Fill this in **after** you pick your topic.

STUDENT RESEARCH TEAM

Who is working on this team?

1. _____
2. _____
3. _____
4. _____
5. _____

TEAM CONTRACT

We promise to do our fair share of the work. We will listen to everyone's ideas kindly. We know that research takes patience, reading, and writing things down carefully.

Signatures:

INSPIRATION & RESOURCES

It is time to explore! Use a tablet or phone to scan these codes. They will help you find a great idea.

Science Project Ideas

Science Buddies

Look at the "Project Library" to find a science question that interests you.



Social Studies Ideas

WV Social Studies Fair Archive

Look at photos of winning project boards to see what a good one looks like.



Bibliography Tools

These tools help you write down your book and website sources correctly.

MyBib



Citation Machine



THE VOCABULARY OF RESEARCH

To be an expert, you have to speak the language! Learn these words with your team.

GENERAL TERMS (FOR EVERYONE)

- **Abstract:** Think of this as the "Movie Trailer" for your report. It is a short summary (about 250 words) at the very start that tells people what your project is about without giving away every single detail.
- **Bibliography:** This is the "List of Credits." It is an alphabetical list of every book, website, or person who gave you information. We list them to show we are not stealing ideas!
- **Discipline:** A specific area of expertise. (Example: Biology is a **Discipline** of Science; History is a **Discipline** of Social Studies).
- **Primary Source:** "The Witness." This is information that comes directly from the time or event.
 - *In Science:* The data numbers you wrote down while doing your experiment.
 - *In Social Studies:* A diary, a letter, a photograph, or an interview with a person who was actually there.
- **Secondary Source:** "The Reporter." This is information written by someone who wasn't there, like an encyclopedia or a textbook written years later.

SCIENCE SPECIFIC TERMS

- **Hypothesis:** "The Educated Prediction." Using what you already know to guess what will happen. We usually write it as: "If I do this... then that will happen..."
- **Variable:** The parts of an experiment that change or stay the same.
 - *Independent Variable:* The **one** thing you change on purpose to test it.
 - *Dependent Variable:* The results you measure at the end.
 - *Controlled Variable:* The things you keep exactly the same so the test is fair.
- **Engineering Design Process:** A cycle used to solve a problem: Think it, Build it, Test it, Fix it.

SOCIAL STUDIES SPECIFIC TERMS

- **Exposition:** A project that "tells the true story" of a person, place, or time in history.
 - **Anthropology:** The study of **Culture**. How people live, what they wear, what they believe, and their traditions.
 - **Sociology:** The study of **Groups**. How people act when they are together in families or communities.
 - **Economics:** The study of **Money and Resources**. How people make things, buy things, and sell things.
-

CHOOSE YOUR DISCIPLINE

Look at the lists below. Your group needs to pick **ONE** path.

PATH A: SOCIAL STUDIES

1. Anthropology (Culture):

How people live and celebrate.

(Examples: Ancient Egypt, Native American Games, Holiday Traditions, Clothing.)

2. Economics (Money & Business):

How people earn and spend money.

(Examples: The Stock Market, How toys are made, Why prices go up, Trading.)

3. Geography (Maps & Nature):

How humans live on the Earth.

(Examples: Recycling, Maps, Protecting the forests, City Planning.)

4. History (The Past):

The story of what happened long ago.

(Examples: The Civil War, Famous Presidents, The history of your town.)

5. Political Science (Government):

The study of laws and rules.

(Examples: The Constitution, How voting works, The Army, Court Judges.)

6. Sociology (Groups):

How we live in families and communities.

(Examples: Family Traditions, How Social Media changes friendship, Community helpers.)

PATH B: SCIENCE

1. Biology (Life):

The study of living things (plants, animals, us!).

(Examples: How fast plants grow, Animal habits, Germs, Genetics.)

2. Chemistry (Reactions):

Mixing things to see how they change.

(Examples: Slime, Baking soda volcanoes, Growing crystals, What is in our food?)

3. Physics (Energy & Moving):

How things move, fly, or use power.

(Examples: Paper airplanes, Magnets, Electricity, Gravity, Machines.)

4. Earth & Environmental (The Planet):

Rocks, weather, and space.

(Examples: Tornadoes, Water pollution, Volcanoes, Solar Power.)

5. Engineering (Building):

Building a new invention to solve a problem.

(Examples: Building a strong bridge, filtering dirty water, designing a robot.)

✓ **DEFINE YOUR PROJECT TYPE**

Now that you picked a **Discipline**, how will you study it? Check the box for your plan.

IF YOU CHOSE SOCIAL STUDIES:

Choose ONE method below.

- ☐ **Problem Solving Project**
Find a real problem (like "Litter in the park") and come up with a realistic plan to fix it.
- ☐ **Exposition Project**
Tell the "True Story" of a topic. You must do more than just read books—you need to interview someone or visit a museum!
- ☐ **Demonstration Project**
Show the audience *how* to do something. You will teach them a skill (like "How to weave a basket like a pioneer").

IF YOU CHOSE SCIENCE:

Choose ONE method below.

- ☐ **Experiment Project**
Use the Scientific Method. Ask a question, make a **Hypothesis** , and run a test to see if you are right.
- ☐ **Engineering Challenge Project**
Build something to solve a problem! You will design it, build it, and test it to see if it works.

Our Chosen Topic Title:

? THE RESEARCH QUESTIONS

Good researchers don't just type one word into Google. They ask specific questions! Assign each question to a different team member.

Our Topic:

Search Keywords (Don't type a whole sentence! List 5 important words):

Type	Your Specific Question (Write the full question here)	Who is digging for the answer?
WHO? (Who did this? Who does it help?)		
WHAT? (What causes this? What are the parts?)		
WHEN? (When did this start? When does it happen?)		
WHERE? (Where can we find this?)		

Type	Your Specific Question (Write the full question here)	Who is digging for the answer?
WHY? <i>(Why is this important? Why does it change?)</i>		
HOW? <i>(How does it work? How do we fix it?)</i>		
??? <i>(Extra Question)</i>		
??? <i>(Extra Question)</i>		
??? <i>(Extra Question)</i>		
??? <i>(Extra Question)</i>		

★ **Challenge for Experts:** Try to think of a question that isn't easy to find on Wikipedia. A "Deep Thinking" question!

≡ **BIBLIOGRAPHY WORKSHEET**

You need at least **3 different sources**. A good researcher keeps track of where they found their facts.

Source 1: Book or Encyclopedia

Author(s) (Last Name, First Name):

Title of Book/Article:

City (Where it was made - if listed): _____

Publisher (Company Name): _____

Year Published: _____

Source 2: Website (Trusted Sources Only)

Author (Who wrote it?):

Title of Article:

Name of Website:

Web Address (URL):

Date You Visited: _____

Source 3: Primary Source (The Witness)

(Interview, Survey, Site Visit, Old Letter, Diary)

What kind of source is this?

Who is the person (if it's a person)?

Date of Event/Interview: _____

Source 4: Book or Encyclopedia

Author(s) (Last Name, First Name):

Title of Book/Article:

City: _____

Publisher: _____

Year: _____

Source 5: Website

Author:

Title of Article:

Name of Website:

Web Address (URL):

Date You Visited: _____

Source 6: Primary Source (The Witness)

(Interview, Survey, Site Visit, Old Letter, Diary)

What kind of source is this?

Who is the person (if it's a person)?

Date of Event/Interview: _____

Source 7: Book or Encyclopedia

Author(s) (Last Name, First Name):

Title of Book/Article:

City: _____

Publisher: _____

Year: _____

Source 8: Website

Author:

Title of Article:

Name of Website:

Web Address (URL):

Date You Visited: _____

Student Name: _____

Topic: _____

How to take notes: 1. Read the paragraph. 2. Hide the text (cover it up). 3. Write what you learned in your own words. (Don't copy!)

[illegible]

Student Name: _____

Topic: _____

How to take notes: 1. Read the paragraph. 2. Hide the text (cover it up). 3. Write what you learned in your own words. (Don't copy!)

[illegible]

Student Name: _____

Topic: _____

How to take notes: 1. Read the paragraph. 2. Hide the text (cover it up). 3. Write what you learned in your own words. (Don't copy!)

[illegible]

Student Name: _____

Topic: _____

How to take notes: 1. Read the paragraph. 2. Hide the text (cover it up). 3. Write what you learned in your own words. (Don't copy!)

[illegible]

Student Name: _____

Topic: _____

How to take notes: 1. Read the paragraph. 2. Hide the text (cover it up). 3. Write what you learned in your own words. (Don't copy!)

[illegible]

SCIENCE: THE EXPERIMENT PLAN

Only use this page if you are doing a Science Experiment.

1. THE VARIABLES

Independent Variable (The ONE thing I will change on purpose):

Dependent Variable (The data I will count or measure):

Controlled Variables (The things I must keep exactly the same so it is a fair test):

1.	2.
3.	4.

2. THE HYPOTHESIS

Fill in the blanks to make your prediction:

IF I change the **Independent Variable** (_____) to be
(_____), THEN the **Dependent Variable**
(_____) will [increase / decrease / change] BECAUSE:

3. DETAILED MATERIALS LIST

List every single tool and ingredient. Be specific! (Example: "500ml of warm water," not just "water").

• _____	• _____
• _____	• _____

4. PROCEDURE (THE STEPS)

Write this so a friend could copy exactly what you did.

1.

2.

3.

4.

5.

6.

7.

8.

SCIENCE: ENGINEERING DESIGN PLAN

Only use this page if you are building an invention.

1. DEFINE THE PROBLEM

Who needs help? What is the challenge?

2. CONSTRAINTS (THE RULES)

What are the limits? (e.g., *Must cost less than \$10? Must fit in a box?*)

1.

2.

3.

3. PROTOTYPE DESIGN

What materials will you use?

Describe your idea:

4. TESTING & IMPROVEMENT

Test 1: *Did it work? Why or why not?*

What will you fix for Prototype 2?

Test 2 Result:

What will you fix for Prototype 3?

Test 3 Result:

What will you fix for Prototype 4?

Test 4 Result:

What will you fix for Prototype 5?

Test 5 Result:

! **SOCIAL STUDIES: PROBLEM SOLVING PLAN**

Only use this page if you are offering a solution to a problem.

1. IDENTIFY THE PROBLEM

What is the problem? Be specific. (Example: Instead of "Recycling," say "People throw cans in the trash at lunch").

2. PROVE THE PROBLEM EXISTS

What evidence shows this is real? (Did you see it? Did you find a fact in an article?).

3. OFFER A SOLUTION

What is your big plan to fix it?

4. FEASIBILITY (WILL IT WORK?)

Why is your plan a good idea? Is it too expensive or too hard to do?

SOCIAL STUDIES: EXPOSITION PLAN

Only use this page if you are telling the "True Story" of a topic.

1. THE TOPIC FOCUS

What is the main subject?

Why is this important for us to learn about?

Is there a mystery or argument about this topic?

2. RESEARCH "CHAPTERS"

Divide your report into 3 main parts (Example: Food, Clothing, Religion).

Chapter 1 Title: _____

Details to cover:

Chapter 2 Title: _____

Details to cover:

Chapter 3 Title: _____

Details to cover:

3. PRIMARY SOURCE PLAN

Who will you interview OR what historical site/museum will you visit?

What specific thing are you looking for there?

SOCIAL STUDIES: DEMONSTRATION PLAN

Only use this page if you are showing HOW to make or do something.

1. THE SKILL / OBJECT

What are you demonstrating?

What culture or time period is this from?

2. MATERIALS NEEDED

List everything you need to do the demo:

3. STEP-BY-STEP INSTRUCTIONS

Write the steps clearly so anyone could follow them.

1.

2.

3.

4.

5.

6.

4. THE EXPLANATION

Why did people do this? How was it useful back then?

DATA VISUALIZATION

Turn your numbers into a picture! A good graph helps people understand your data quickly.

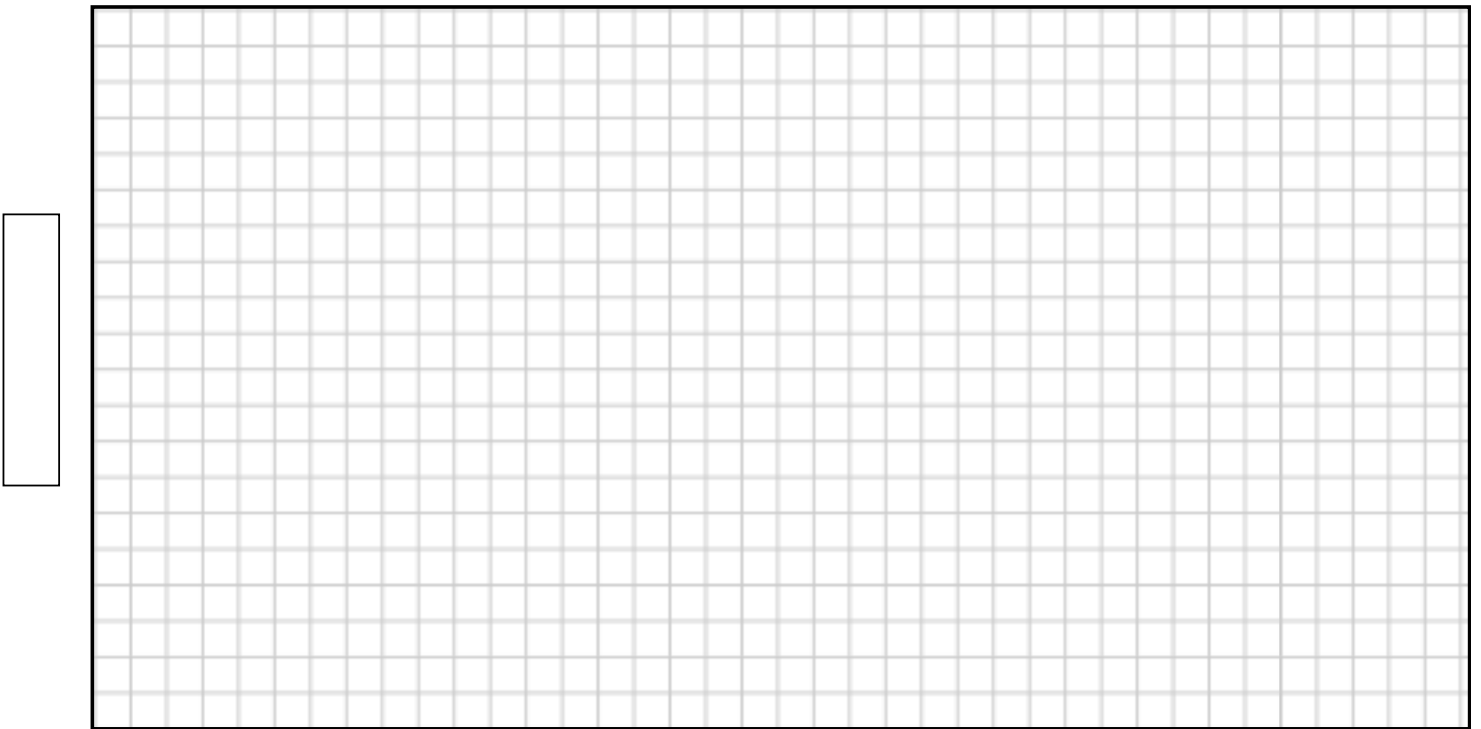
A. CHOOSE YOUR VISUAL

- **Line Graph:** Like a story line. Best for showing how things change over time (Example: How high a plant grows over 10 days).
- **Bar Graph:** Best for comparing amounts (Example: Survey votes for Pizza vs. Tacos).
- **Pie Chart:** Like slices of a pizza. Best for showing percentages.
- **Annotated Map:** Best for Geography/History (Example: Drawing trade routes on a map).
- **Timeline:** Best for History (Example: The order of major events).

B. DRAFT YOUR VISUAL

Use the space below to draw a rough draft of your graph or map.

Title of Graph:



WRITING GUIDE: SCIENCE EXPERIMENT

Draft your report here. Use full sentences!

1. INTRODUCTION

What is your big question and why did you choose it?

2. BACKGROUND RESEARCH

What did you learn from your books **before you started the test? (Use your notes from Page 8).**

3. METHODOLOGY

What was your Hypothesis? How exactly did you do the test?

4. RESULTS (THE DATA)

What happened? Look at your graphs. Did the numbers go up or down?

5. CONCLUSION

Was your hypothesis right? What would you do differently next time?

WRITING GUIDE: ENGINEERING DESIGN

1. PROBLEM DESCRIPTION

Who has the problem and what do they need?

2. BACKGROUND RESEARCH

What inventions already exist like this? What science did you need to learn first?

3. DESIGN REQUIREMENTS

What were the Rules (Constraints)? Why did you choose your materials?

4. TESTING RESULTS

Did your first prototype work? What failed? How did you fix it?

5. FINAL CONCLUSION

Does your final design solve the problem?

WRITING GUIDE: SOCIAL STUDIES PROBLEM SOLVING

1. THE PROBLEM

Describe the problem. Why is it bad for the community?

2. EVIDENCE & BACKGROUND RESEARCH

Prove the problem is real. Use your facts and research notes.

3. PROPOSED SOLUTION

What is your plan? Describe the details.

4. WHY IT WILL WORK (CONCLUSION)

Why is your solution the best choice? Is it fair?

WRITING GUIDE: SOCIAL STUDIES EXPOSITION

1. INTRODUCTION

Introduce your main topic. Why is this interesting?

2. BACKGROUND RESEARCH (THE STORY)

Tell the main story using your notes. (Use the 3 Chapters you planned on Page 12).

3. PRIMARY SOURCE ANALYSIS

What did you learn from your interview or site visit that wasn't in the books?

4. CONCLUSION & CONNECTION

Why does this topic matter today? How does this history help us understand now?

WRITING GUIDE: SOCIAL STUDIES DEMONSTRATION

1. INTRODUCTION

What skill or object are you demonstrating?

2. HISTORICAL CONTEXT (BACKGROUND RESEARCH)

Where does this come from? Who used it first and why?

3. THE PROCESS

Describe the steps you took to make or do it.

4. CONCLUSION

Why is it important to keep this tradition alive?

DRAFTING THE ABSTRACT

STOP! Write this part **LAST**. The **Abstract** is the "Movie Trailer" summary of your whole report.

You can use the sentence starters below to help you draft it. When you type your final paper, combine these sentences into one big paragraph.

Part 1: The "Why" (Purpose)

My project is about... I wanted to learn this because...

Part 2: The "How" (Method)

To do this research, I... (Describe your experiment or where you looked for info).

Part 3: The "What" (Conclusion)

In the end, I discovered that... This is important because... >

FINAL REPORT & DISPLAY

THE WRITTEN REPORT

You must type your final paper.

- **Font:** Use a normal font like Calibri or Arial, Size 12.
- **Spacing:** Double-spaced (Leave room between the lines).

Order of Pages:

1. **Title Page** (Title, Student Names, Date)
2. **Table of Contents**
3. **Abstract** (The summary you wrote on Page 20)
4. **Body of Report** (The Writing Guide pages you just finished)
5. **Bibliography** (Your list of sources in alphabetical order)

THE DISPLAY BOARD

Use a standard tri-fold board. Make sure the words are big enough to read from 3 feet away!

LEFT SIDE	CENTER	RIGHT SIDE
The Plan: • Abstract • The Question • Hypothesis • How we did it	The Evidence: • BIG TITLE • Photos • Charts & Graphs • Maps • Models	The Result: • Results (Data) • Conclusion • What we would do next

✓ **FINAL PROJECT CHECKLIST**

Check these boxes before you hand in your project!

- ☐ **Topic:** Is our topic specific? (Not just "Space", but "Why Mars is Red").
- ☐ **Contract:** Did everyone sign the team contract on Page 1?
- ☐ **Bibliography:** Do we have at least 3 sources?
- ☐ **Notes:** Did every group member help write notes?
- ☐ **Investigation:** Did we fill out the right planning sheet?
- ☐ **Body of Report:** Did we write full sentences (not just bullet points)?
- ☐ **Abstract:** Is it a short summary? Is it at the front of the paper?
- ☐ **Visuals:** Do we have at least one graph or map on the board?
- ☐ **Display:** Is the board neat? Can you read it from far away?
- ☐ **Spelling:** Did we check for mistakes?
- ☐ **Practice:** Did we practice talking about our project 3 times?

👤 **PERSONAL REFLECTION**

Think about how you worked.

What was the hardest part of working with your team? How did you solve it?

Did you make any mistakes during the project? How did you fix them?
