Lesson: Cells and Cell System	Name:
Teacher:	Date:

Cell Model Project Guide

Plant Cell or Animal Cell – Group Project

Group Members:

Project Objective: You and your group will create a three-dimensional (3D) model of either a plant cell or an animal cell. Your model should:

- Show all major organelles clearly
- Use different materials to represent each organelle
- Include labels and function descriptions
- Demonstrate team collaboration and creativity
- Help you explain how cells work in real life

This project will help you better understand cell structure and function through hands-on modeling.

Materials (Use any safe and approved materials)

You are encouraged to recycle and be creative.

Suggested materials:

- Clay, Play-Doh, or Model Magic
- Styrofoam ball or rectangular styrofoam block
- Paint, markers, or colored pencils
- Toothpicks + labeling strips
- Cardboard pieces, felt, beads, yarn, foam sheets, fabric scraps
- Bottle caps, buttons, paper clips, plastic lids
- Glue or hot glue (teacher-approved only)
- Scissors, tape, construction paper

Optional decorative materials: glitter, stickers, pipe cleaners, pom-poms (Use only if allowed in class.)

Step-by-Step Procedures (Detailed Instructions)

1. Choose Your Cell Type

As a group, decide whether you will model a plant cell or an animal cell.

- Plant cells have a cell wall, chloroplasts, and a large central vacuole.
- Animal cells are rounder and have centrioles.

2. Research Your Cell

Review class notes, diagrams, videos, and your word wall. Make sure you understand:

- What each organelle looks like
- What each organelle does
- Which organelles are unique to your cell type

3. Plan Your Design

Sketch your model on paper. Plan:

- What material will represent each organelle?
- What shape and color will each part be?
- Who is responsible for each step?

4. Build the Base Structure

- Plant cell → make a box-like rectangular base
- Animal cell → make a circular/oval base
  You may cut a styrofoam ball in half or use cardboard.

5. Create and Attach the Organelles

Use different textures, colors, and sizes. Ensure accuracy:

- Nucleus
- Cell membrane
- Cytoplasm
- Mitochondria
- Vacuole(s)
- Endoplasmic reticulum

  - Golgi body
- Ribosomes
- (Plant only) Cell wall, chloroplasts, large central vacuole
- (Animal only) Centrioles, small vacuoles

Glue organelles into place securely.

6. Label the Organelles

Use toothpicks and paper strips. Write neatly and clearly.

7. Create a Function Card

On a separate small paper:

- List each organelle
- Write a 1-sentence function for each

Attach or place beside your model.

8. Final Review

Check:

- Is it accurate?
- Are labels readable?
- Is everything attached securely?
- Does it look neat and creative?

9. Presentation Preparation

Be ready to explain:

- Why you chose your cell type
- What each organelle does
- What materials you used
- How your group worked together
- What challenges you solved

Scientific Method – Comprehension Questions

Answer in complete sentences. Lines are provided.

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1. Question

What problem was your group trying to solve when creating the cell model?

2. Hypothesis

Which materials did your group predict would work best for building certain organelles, and why?

3. Experiment / Procedure

Explain the steps your group followed as you tested and created your model.

4. Analysis

What challenges did your group face during the project? How did you solve them?

5. Conclusion

How does your final model help you understand how plant and animal cells work?

Cell Model Project – Rubric (100 Points Total)
(Plant or Animal Cell Model – Group Project)

Category	Excellent (A)20–25 pts	Good (B)15–19 pts	Satisfactory (C)10–14 pts	Needs Improvement (D–F)0–9 pts
1. Accuracy of Organelles (25 pts)	Model includes ALL required organelles, correctly shaped and placed; highly accurate.	Most organelles included; minor inaccuracies.	Some organelles missing or incorrect.	Many organelles missing; major inaccuracies.
2. Creativity & Use of Materials (25 pts)	Very creative; materials used in a unique, thoughtful way; excellent effort.	Creative; materials used well.	Basic creativity; materials used simply.	Little creativity; minimal effort; materials not used effectively.
3. Neatness & Construction Quality (20 pts)	Clean, neat, well-built; very organized.	Mostly neat; a few messy areas.	Somewhat neat; several messy or unclear parts.	Difficult to understand; messy; poorly constructed.
4. Labeling & Functions (20 pts)	ALL organelles clearly labeled with readable writing; includes accurate function notes.	Most organelles labeled; functions mostly correct.	Some labels missing; functions partially correct.	Many labels missing; incorrect or no functions.
5. Teamwork & Group Presentation (10 pts)	All members participate; explanation is clear and accurate.	Most members participate; explanation mostly clear.	Some participation; explanation is uneven.	Little participation; unclear or incomplete explanation.

TOTAL: 100 POINTS

Legend:

- 90–100 points = A (Excellent)
- 80–89 points = B (Good)
- 70–79 points = C (Satisfactory)
- 60–69 points = D (Needs Improvement)
- 0–59 points = F (Unsatisfactory)

See pictures below for inspiration:

Plant Cell Models:

Animal Cell Models: