CELL ORGANELLES

WORKSHEETS · GRADES 6–8



26 STUDENT PAGES

Bright Path Sped

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Print at 100 percent

Turn off fit to page and shrink to fit so the ruled lines stay 0.34 inch apart. Every student page is black and white inside a colored border, so it still reads when copied in black and white.

Student work

A filled-in tracker, class grid or team note carries a real student's name. Keep it in the data folder, and use a first name only on any page that leaves your hands.

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PREVIEW

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How To Read a Page

The parts of a student page, then the kinds of sheet in the order they come.

The parts of a page

- **The answer box.** A bordered box for a letter, a number or a word. Click it to type, or print and write in it.
- **The ruled work box.** Lines 0.34 inch apart for sentences. Write one idea to a line.
- **The check box.** True or false, yes or not yet: click or mark.
- **The word bank.** A box of words to use. Some words are used once, some twice, some not at all.
- **The cut line.** Six pieces in a 3 by 2 grid, each 2.4 by 1.15 inches, edge to edge: one cut across and two down.

Kind of sheet	How many	What the student does
Readings and cards	4 sheets	Read, answer, and keep the twelve organelle cards to look things up.
Words and matching	4 sheets, 22 items	Match words, organelles and jobs, try a worked example.
Labeling	2 sheets, 19 items	Label a whole cell, then zoom in on three organelles.
The city	2 sheets, 10 items	Match city parts to organelles, then make your own analogy.
True or false and mistakes	3 sheets, 16 items	Check sentences, fix false ones, find Dev's mistakes.
Writing	4 sheets, 12 questions	Short answers, then what-if boxes with five ruled lines each.
Quizzes, exit tickets, sorts	12 items, 3 tickets, 18 pieces	Two quizzes, one exit sheet, three cut-and-paste mats.

PREVIEW

Untimed, unscored on the page

No student page has a timer or a score on it. The keys and the tracker are for you. The answer keys are on pages 31 to 35.

Short answers and what-if's

Their keys (page 34) say what to look for, not one right sentence. Accept any answer that uses a fact from the readings or the cards.

Printing and the type-in fields

Every page prints clean in black and white. The name line, every answer box, every ruled box and every check box are type-in fields in any PDF reader: click one, type, then save. This is a fillable PDF, not a slideshow or a word-processor file.

Room to work

Work boxes hold three or more lines. If a student needs more room, hand over one page a day, or let students write on scrap paper and copy their best sentences into the box.

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My name _____ Date _____

Reading 1: Inside a Cell

Read about the cell. Then answer.

Meet the organelles

Think of a cell as a tiny factory with workers that each have one job. An **organelle** is a part inside a cell that does a special job. Many organelles are wrapped in their own membrane, so each one can do its work in its own space. At the edge of the cell is the **cell membrane**, a thin, flexible boundary that controls what enters and leaves. Inside it is the **cytoplasm**, a jelly-like fluid that holds the organelles in place. The **nucleus** holds the cell's **DNA**, the instructions that tell the cell how to work and grow. Plant cells also have a stiff **cell wall** outside the membrane that supports and protects them. Because each organelle has one main job, a cell can do many jobs at the same time and stay alive.

Main idea: What is this reading mostly about?

Check what you read. Write the letter in the box.

1. What is an organelle?
   - **A** A part inside a cell that does a special job
   - **B** A very small whole living thing
   - **C** A stiff layer around a cell

2. What does the cell membrane do?
   - **A** Holds the cell's DNA
   - **B** Controls what enters and leaves the cell
   - **C** Makes sugar from sunlight

3. What does the nucleus hold?
   - **A** Food for the cell
   - **B** Waste from the cell
   - **C** DNA, the instructions for the cell

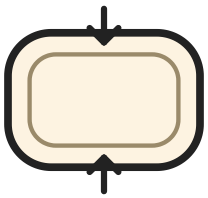
PREVIEW

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My name _____ Date _____

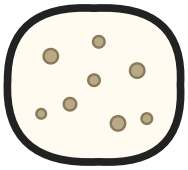
Organelle Cards 1

Read the cards. Use them all week.



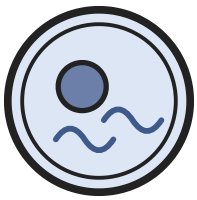
Cell membrane

A thin, flexible boundary around every cell. It controls what enters and leaves the cell.



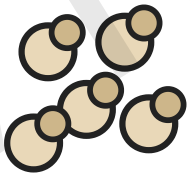
Cytoplasm

The jelly-like fluid inside the cell. It holds the organelles, and many chemical reactions happen here.



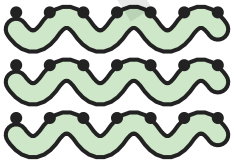
Nucleus

Holds the cell's DNA, the instructions for the cell. It directs what the cell does.



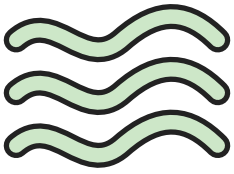
Ribosomes

Tiny structures that build proteins. Some float in the cytoplasm and some sit on the rough ER.



Rough ER

A network of folded membrane covered with ribosomes. Proteins made there are moved along inside it.



Smooth ER

A network of folded membrane with no ribosomes. It makes lipids (fats) and helps move materials.

Pick one organelle. Tell its job in your own words.

PREVIEW

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My name _____ Date _____

Cell Organelle Words

Match each word to what it means.

Write the letter of the meaning in the box. Use the readings to help you.

1	**organelle**		**A**	A protein that speeds up a chemical reaction.
2	**cytoplasm**		**B**	A thin, flexible layer that forms a boundary.
3	**membrane**		**C**	The ability to do work or cause change.
4	**protein**		**D**	A part inside a cell that does a special job.
5	**enzyme**		**E**	A molecule that cells build to do many jobs.
6	**energy**		**F**	The jelly-like fluid inside a cell.

Use two of the words in one sentence about a cell.

PREVIEW

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My name _____ Date _____

Match Organelle to Job

Match each organelle to its job.

Write the letter of the job in the box. Use the organelle cards to help you.

1	**Nucleus**		**A**	Stores water, food and wastes.
2	**Cell membrane**		**B**	Releases energy from food.
3	**Mitochondria**		**C**	Captures light energy to make sugar.
4	**Ribosomes**		**D**	Holds the DNA and directs the cell.
5	**Golgi apparatus**		**E**	Builds proteins.
6	**Vacuole**		**F**	Breaks down worn-out parts with enzymes.
7	**Lysosome**		**G**	Controls what enters and leaves the cell.
8	**Chloroplast**		**H**	Sorts, packages and ships proteins.

Pick one organelle. Tell why a cell needs it.

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My name _____ Date _____

Zoom In and Label

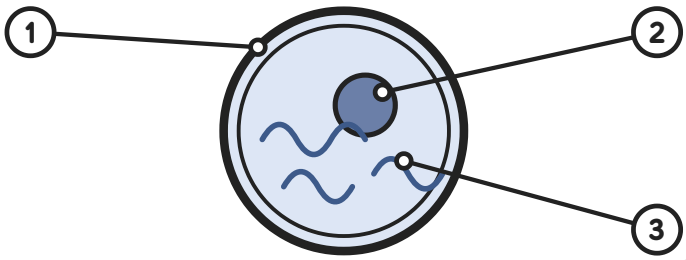
Zoom in. Write the name of each part.

Read each fact. Write the name for each number. One word is used twice.

matrix **nuclear envelope** **grana** **DNA** **outer membrane** **nucleolus** **stroma** **inner membrane**

Zoom in: the nucleus

The nucleus is wrapped in a double membrane called the nuclear envelope. The dark spot is the nucleolus, where parts of ribosomes are made. The thin threads are DNA.



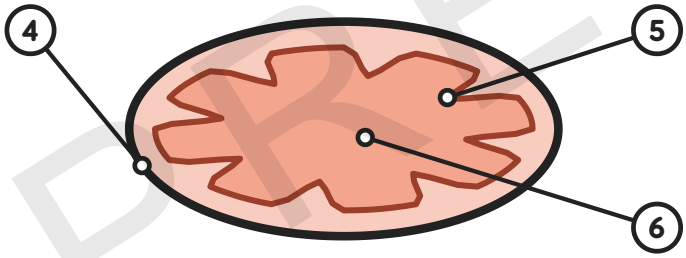
1 _____

2 _____

3 _____

Zoom in: a mitochondrion

A mitochondrion has a smooth outer membrane and a folded inner membrane. The folds give more room for releasing energy. The fluid inside is the matrix.



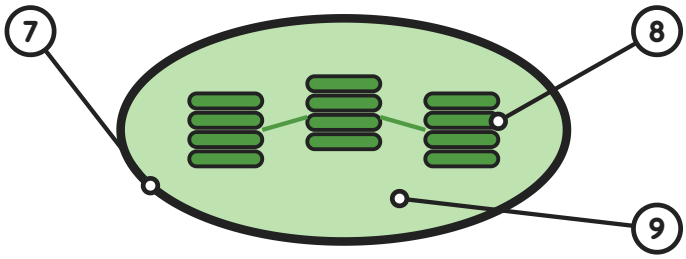
4 _____

5 _____

6 _____

Zoom in: a chloroplast

A chloroplast has an outer membrane. Inside are stacks of green discs called grana, where light is captured. The fluid around the stacks is the stroma.



7 _____

8 _____

9 _____

PREVIEW

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My name _____ Date _____

Make Your Own Analogy

Think of a place you know. Match its parts to a cell.

My place

Example. In a school, the main office is like the nucleus. It keeps the records and sends out the directions (made up for practice).

My place is _____

Nucleus

Holds the DNA and directs the cell

In my place, it is like _____ **because...**

Mitochondria

Release energy from food

In my place, it is like _____ **because...**

Cell membrane

Controls what enters and leaves

In my place, it is like _____ **because...**

Lysosome

Breaks down worn-out parts

In my place, it is like _____ **because...**

Golgi apparatus

Sorts, packages and ships

In my place, it is like _____ **because...**

PREVIEW

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My name _____ Date _____

True or False 2

Is it true or false? Check one.

Check true or false for each sentence.

1. The rough ER has ribosomes on its surface. ☐ true ☐ false

2. The smooth ER is covered with ribosomes. ☐ true ☐ false

3. A vacuole stores water, food and wastes. ☐ true ☐ false

4. Chloroplasts release energy from food. ☐ true ☐ false

5. The cell wall is inside the cell membrane. ☐ true ☐ false

6. Lysosomes use enzymes to break down worn-out parts. ☐ true ☐ false

Pick one false sentence. Fix it so it is true.

PREVIEW

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My name _____ Date _____

Short Answers 2

Answer each question in sentences.

Use facts from the readings and the cards. Write in sentences.

4 How are mitochondria and chloroplasts different? What does each one do with energy?

5 Why might a muscle cell have more mitochondria than a skin cell?

6 Pick two organelles that work together. Explain how they help each other.

PREVIEW

My name _____ Date _____

What If It Stopped? 2

What would happen? Explain it.

Use what you know about the job of each organelle. Say why it would happen.

Start with: If the ____ stopped working, then ____ because ____.

4 What if the lysosome stopped working? What would happen to the cell?

5 What if the Golgi apparatus stopped working? What would happen to the cell?

6 What if the cell membrane stopped working? What would happen to the cell?

PREVIEW

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My name _____ Date _____

Quiz B

Pick the best answer. Write its letter.

Take your time. Guess if you are not sure.

7 Which organelle captures light energy to make sugar?

A Mitochondria
B Chloroplast
C Vacuole

8 How are rough ER and smooth ER different?

A Rough ER has ribosomes on it; smooth ER does not
B Rough ER is outside the cell; smooth ER is inside
C Smooth ER builds proteins; rough ER stores water

9 Which organelle uses enzymes to break down worn-out parts?

A Ribosome
B Nucleus
C Lysosome

10 Which organelle stores water, food and wastes?

A Golgi apparatus
B Nucleus
C Vacuole

11 In the cell-as-a-city idea, which organelle is like the power plant?

A Nucleus
B Mitochondria
C Lysosome

12 Why can a cell do many jobs at the same time?

A Each organelle has its own job
B The nucleus does every job
C The cell wall does all the work

PREVIEW

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My name _____ Date _____

Check My Own Work

Check your own work. Mark yes or not yet.

1	I can say what an organelle is.	☐ yes	☐ not yet
2	I can tell the job of the nucleus and the cell membrane.	☐ yes	☐ not yet
3	I can tell what mitochondria and chloroplasts do with energy.	☐ yes	☐ not yet
4	I know what ribosomes, the ER and the Golgi apparatus do.	☐ yes	☐ not yet
5	I can tell what a vacuole and a lysosome do.	☐ yes	☐ not yet
6	I can label the parts of a cell.	☐ yes	☐ not yet
7	I can explain the cell as a city.	☐ yes	☐ not yet
8	I can say what would happen if an organelle stopped.	☐ yes	☐ not yet

The organelle I can explain best is...

The part I still need help with is...

PREVIEW

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My name _____ Date _____

Cut and Paste 2

Cut out the six pieces. Paste each one in the right box.

Read each piece. Which group of jobs does it belong to?

Make and Move Proteins	Get and Use Energy	Store and Clean Up

Cut on the dashed lines: six pieces, one cut across and two cuts down.

A vacuole stores water, food and wastes	Ribosomes build proteins	Mitochondria release energy from food
Lysosomes break down worn-out parts	Chloroplasts capture light to make sugar	The Golgi apparatus sorts and ships proteins

Which piece told you the most? Why?

PREVIEW

Answer Key: Readings, Words, Matching

Every letter is the position of the right option in the printed list.

Readings pages 5, 6

Item	Letter	Answer
5.1	A	A part inside a cell that does a special job
5.2	B	Controls what enters and leaves the cell
5.3	C	DNA, the instructions for the cell
6.1	B	Ribosomes
6.2	A	Golgi apparatus
6.3	C	Release energy from food

Cell Organelle Words page 9

Word	Letter	Meaning
1. organelle	D	a part inside a cell that does a special job
2. cytoplasm	F	the jelly-like fluid inside a cell
3. membrane	B	a thin, flexible layer that forms a boundary
4. protein	E	a molecule that cells build to do many jobs
5. enzyme	A	a protein that speeds up a chemical reaction
6. energy	C	the ability to do work or cause change

Match Organelle to Job page 11

Organelle	Letter	Job
1. Nucleus	D	Holds the DNA and directs the cell
2. Cell membrane	G	Controls what enters and leaves the cell
3. Mitochondria	B	Releases energy from food
4. Ribosomes	E	Builds proteins
5. Golgi apparatus	H	Sorts, packages and ships proteins
6. Vacuole	A	Stores water, food and wastes
7. Lysosome	F	Breaks down worn-out parts with enzymes
8. Chloroplast	C	Captures light energy to make sugar

Name That Organelle page 12

Clue	Name
1. I build proteins. Some of me sit on the ...	Ribosomes
2. I am a stiff layer outside the cell memb...	Cell wall
3. I hold the DNA, the cell's instructions....	Nucleus
4. I break down worn-out parts with enzymes...	Lysosome
5. I capture light energy to make sugar....	Chloroplast
6. I make lipids, and I have no ribosomes o...	Smooth ER
7. I sort and package proteins and ship the...	Golgi apparatus
8. I am the jelly-like fluid that holds the...	Cytoplasm

PREVIEW

Answer Key: Writing

These pages have no single right sentence. Accept any answer that uses a fact from the readings or the cards.

Short answers: what to look for pages 19, 20

Item	Look for
19.1	An organelle is a part of a cell that does a special job. A cell has many jobs to do at once (making proteins, getting energy, storing materials), so different organelles share the work.
19.2	Ribosomes build it, often on the rough ER. The ER moves it along, and the Golgi apparatus sorts, packages and ships it where it is needed.
19.3	Both are in charge of something: the nucleus directs the cell with its DNA, and the membrane controls what enters and leaves. The nucleus is inside and holds the DNA; the membrane is the outer boundary.
20.1	Mitochondria release energy from food in a form the cell can use. Chloroplasts capture light energy and use it to make sugar.
20.2	A muscle cell uses a lot of energy to move, and mitochondria release energy from food, so a muscle cell needs many of them.
20.3	Any correct pair with the link explained, such as ribosomes and the rough ER (ribosomes build proteins and the ER moves them), the rough ER and the Golgi apparatus (proteins move on to be packaged), or the nucleus and ribosomes (instructions, then proteins).

What if it stopped? What to look for pages 21, 22

Item	Look for
21.1: Nucleus	The cell would lose its instructions. It could not direct its activities or build the proteins it needs.
21.2: Mitochondria	The cell would not get usable energy from its food, so it could not move, grow or build things as well.
21.3: Ribosomes	No new proteins would be built. The cell could not grow, repair itself or make enzymes.
22.1: Lysosome	Worn-out parts and waste would pile up because nothing would break them down.
22.2: Golgi apparatus	Proteins would be made but not sorted, packaged or shipped, so they would not reach the places that need them.
22.3: Cell membrane	The cell could not control what comes in and goes out. Needed things could leak out and harmful things could get in.

Analogy page, exit tickets

- Make Your Own Analogy (page 16): accept any place the student knows, if each match is reasonable and the because-line ties the job of the organelle to the part of the place.
- Exit tickets (page 26): ticket 1 names three organelles with a correct job each; ticket 2 picks one organelle and says what would go wrong; ticket 3 is open.

PREVIEW

Cell Organelles Tracker

One student, every scored sheet. Filled example: page 40.

Student _____ Teacher _____ Month _____

Page	Page type and set	Items	Right	Date	Notes
5	Reading 1: Inside a Cell	3			
6	Reading 2: Making, Moving and Powering	3			
9	Cell Organelle Words	6			
11	Match Organelle to Job	8			
12	Name That Organelle	8			
13	Label the Cell	10			
14	Zoom In and Label	9			
15	The Cell as a City	10			
17	True or False 1	6			
18	True or False 2	6			
23	Find the Mistake	4			
24	Quiz A	6			
25	Quiz B	6			
28	Cut and Paste 1	6			
29	Cut and Paste 2	6			
30	Cut and Paste 3	6			

How to fill this in

Write how many items the student got right with no prompt, and the date. A blank means not tried yet, never wrong. There are 103 items on the 16 scored sheets. Answer keys: pages 31 to 35. Filled example: page 40.

This month we are working on (your own standard or wording)

PREVIEW

Team Note

Use this page between team meetings or when a student moves classes, to hand off what changed without writing a note from scratch. Everything below is observable, with a blank for the number or the wording your team already uses.

Student _____ Team member _____ Date _____

Kind of sheet	Covered since last note (Y/N)	Items right	Still blank
Readings and words			
Matching			
Labels			
City			
True or false			
Find the mistake			
Quizzes			
Sorts			

What I saw (observable, not a conclusion)

- Matched ___ of 16 organelles to a job (pages 11, 12).
- Labeled ___ of 19 parts (pages 13, 14).
- Got ___ of 12 true or false sentences right (pages 17, 18).
- Explained what one organelle does in a complete sentence: yes / no / with a reminder.

Next step

- Next page or set: ___, because ___ (what you saw).
- What to try in another class or at home: ___.
- What to keep doing because it is working: ___.
- Anything for the team meeting to decide: ___ (this page records what happened, never a label or a plan).

Summary, in one or two sentences, for whoever reads this next

A filled-in line, for reference

"Got 4 of 6 true or false sentences right on 10/15. Next step: reread Reading 2 and ask which organelle builds proteins and which one releases energy." That is the level of detail this page is built for. It matches the filled example on page 40.

PREVIEW

Jordan's Tracker (Invented Student)

Jordan T. is invented; nothing on this page describes a real student. The blank tracker is on page 36.

Student: Jordan T. (an invented student)

Teacher: Ms. Rivera (invented)

Month: October

Page	Page type and set	Items	Right	Date	Notes
5	Reading 1: Inside a Cell	3	3	10/6	-
6	Reading 2: Making, Moving and Powering	3	2	10/7	Mixed up the Golgi and the smooth ER
9	Cell Organelle Words	6	5	10/8	Mixed up enzyme and protein
11	Match Organelle to Job	8	6	10/9	Swapped lysosome and vacuole
12	Name That Organelle	8	-	-	-
13	Label the Cell	10	7	10/13	Missed smooth ER and cytoplasm
14	Zoom In and Label	9	-	-	-
15	The Cell as a City	10	8	10/16	Matched post office to rough ER
17	True or False 1	6	4	10/15	Thought mitochondria build proteins
18	True or False 2	6	-	-	-
23	Find the Mistake	4	-	-	-
24	Quiz A	6	5	10/20	Mixed up nucleus and ribosomes
25	Quiz B	6	-	-	-
28	Cut and Paste 1	6	6	10/22	-
29	Cut and Paste 2	6	-	-	-
30	Cut and Paste 3	6	-	-	-

PREVIEW

How to read it

Jordan T. has done **9 of 16** scored sheets and got **46 of 58** items right with no prompt. **2** sheets were all right and **7** carry a note. Every number comes from the table.

What the table points to

The lowest sheets are Reading 2: Making, Moving and Powering (2 of 3) and True or False 1 (4 of 6). Those are where the next practice goes. The 7 sheets left blank are not tried yet, never wrong.