MACRO MOLECULES

WORKSHEETS · GRADES 6-8







My name _____ Date _____

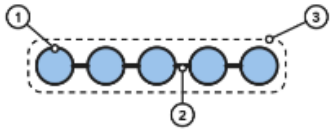
Label the Chain

Zoom in. Write the name of each part.

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

monomer	bond	polymer	amino acid	protein	phosphate	sugar	base

Zoom in: units join into a chain
A cell joins small units one at a time. The joins hold the chain together. The whole chain is one big molecule.



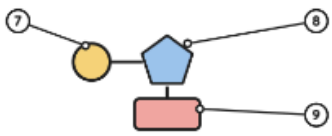
1 _____
2 _____
3 _____

Zoom in: a protein is made
A chain of different units folds into a special shape. The shape lets the molecule do its job.



4 _____
5 _____
6 _____

Zoom in: one nucleotide
Each unit of DNA or RNA has three parts. The ring in the middle is a sugar.



7 _____
8 _____
9 _____

Macromolecules - Label the Chain

26 STUDENT PAGES

ANSWER KEYS



Bright Path Sped

Terms of Use

Please read before you print your first page.

One classroom license

- This file is for one classroom: one teacher, one group of students.
- Please do not share it, post it online, or sell it.
- Extra licenses for a team or a school are available on the product page.

This is a fillable PDF

- Open it in a PDF reader (Adobe Acrobat Reader, Preview, or your browser), click into a line or a box, type, and Save As.
- The name line, every answer box, every ruled work box and every check box on the student pages are type-in fields, and so are the tracker, class grid, team note and family page. You can also print any page and write by hand.
- It works offline. No account, no subscription, no internet connection needed after you download it.

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.

Need help?

If a field will not behave or a page will not print the way you expect, use Ask a Question on the product page before leaving a review. Every question is read, and a fix to the file ships as a free update: re-download it any time from My Purchases.

Credits and fonts

Fonts by KA Fonts (Kaitlynn Albani), used under their commercial license. The chain diagrams, borders, icons and ruled boxes are drawn by us. The only clip art is the food pictures on the cover, by Whimsy Clips. The credits page at the back lists the sources. Please keep it with the file if you pass it to a substitute.

© Bright Path Sped. For single-classroom use by the original purchaser.

PREVIEW

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.** Eight or nine pieces in a short grid, edge to edge: a few straight cuts across and down.

Kind of sheet	How many	What the student does
Readings and cards	4 sheets	Read, answer, and keep the four group cards to look things up.
Words and matching	4 sheets, 22 items	Match words, building blocks and groups; try a worked example.
Labeling and the chart	3 sheets, 29 items	Label chains of monomers, then fill in a chart for the four groups.
True or false and mistakes	3 sheets, 16 items	Check sentences, fix false ones, find Mara's mistakes.
Writing	4 sheets, 12 questions	Short answers, then explain-it boxes with five ruled lines each.
Quizzes, exit tickets, sorts	12 items, 3 tickets, 33 pieces	Two quizzes, one exit sheet, four cut-and-paste mats.

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 explain-its

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.

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

Reading 1: Big Molecules, Small Parts

Read about macromolecules. Then answer.

Macromolecules, carbohydrates and lipids

Living things are built from molecules. Some molecules are so large that they are called **macromolecules**. A macromolecule is made of many small parts joined together. One small part is a **monomer**. Many monomers joined in a long chain make a **polymer**. Living things have four groups of macromolecules. **Carbohydrates** are made of carbon, hydrogen and oxygen. Their monomers are simple sugars, such as glucose. Cells use sugar for quick energy, and plants store extra sugar as starch. **Lipids** are fats, oils and waxes. A fat is built from fatty acids and glycerol. Lipids do not mix well with water. They store energy and make up cell membranes.

Main idea: What is this reading mostly about?

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

1. What is a monomer?
   - **A** One small part that joins with others
   - **B** A very long chain of many parts
   - **C** A kind of oil

2. What are the monomers of carbohydrates?
   - **A** Simple sugars, such as glucose
   - **B** Amino acids
   - **C** Fatty acids

3. Which job do lipids do?
   - **A** Speed up chemical reactions
   - **B** Carry genetic information
   - **C** Store energy and make up cell membranes

PREVIEW

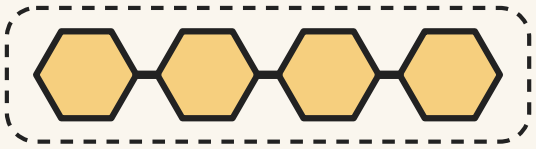
Preview · Bright Path Sped

My name _____ Date _____

Group Cards 1

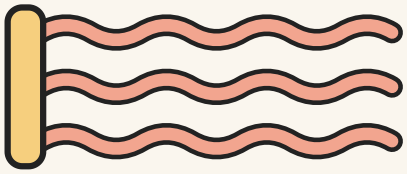
Read the cards. Use them all week.

Carbohydrates



Made of	carbon, hydrogen and oxygen
Building block	monosaccharide, or simple sugar (glucose is one)
Long chain	polysaccharide (starch, glycogen, cellulose)
Jobs	quick energy for cells; stored energy; cellulose gives plant cell walls strength
Examples	glucose, starch, cellulose

Lipids



Made of	mostly carbon and hydrogen, with some oxygen
Built from	fatty acids and glycerol (lipids are not true polymers)
Special trait	lipids do not mix well with water
Jobs	store a lot of energy; make up cell membranes; waxes coat surfaces
Examples	fats, oils, waxes

Pick one group. Tell what it does in your own words.

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

Macromolecule Words

Match each word to what it means.

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

1	**macromolecule**		**A**	A basic substance, such as carbon or oxygen.
2	**monomer**		**B**	A long chain made of many monomers.
3	**polymer**		**C**	A protein that speeds up a chemical reaction.
4	**molecule**		**D**	A very large molecule made of many small parts.
5	**element**		**E**	Two or more atoms joined together.
6	**enzyme**		**F**	One small part that can join with others in a chain.

Use two of the words in one sentence about living things.

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

Match Building Blocks and Chains

Match each word to what it means.

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

1	**Monomer**		**A**	What a fat or an oil is built from.
2	**Polymer**		**B**	A simple sugar, the building block of carbohydrates.
3	**Monosaccharide**		**C**	A nucleic acid that stores genetic information.
4	**Amino acid**		**D**	One small part that joins with others.
5	**Nucleotide**		**E**	The building block of proteins.
6	**Fatty acids and glycerol**		**F**	A long chain of sugar units, such as starch.
7	**Polysaccharide**		**G**	A long chain of many monomers.
8	**DNA**		**H**	The building block of nucleic acids.

Pick one pair. Tell how the building block and the chain are connected.

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

Label the Four Diagrams

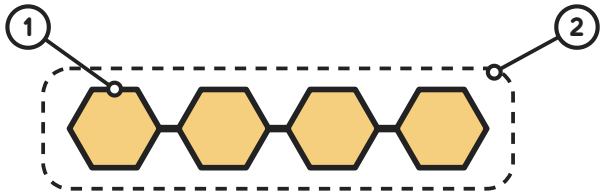
Write the name each number points to.

Each diagram shows a building block and what it makes. Write the name each number points to.

amino acid **fatty acid** **glycerol** **monosaccharide**

nucleic acid **nucleotide** **polysaccharide** **protein**

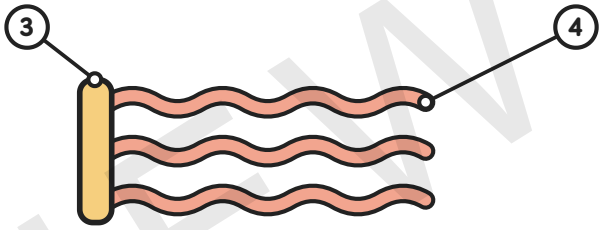
Diagram 1



1 _____

2 _____

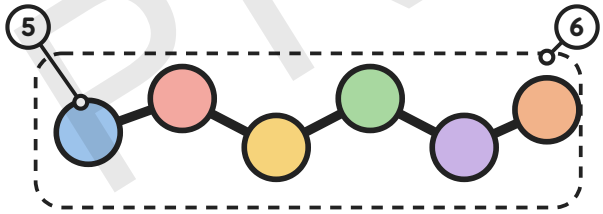
Diagram 2



3 _____

4 _____

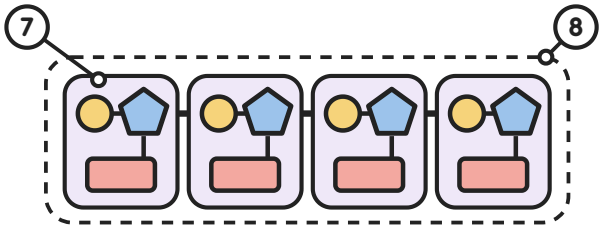
Diagram 3



5 _____

6 _____

Diagram 4



7 _____

8 _____

Pick one diagram. Tell how the small part and the whole molecule are connected.

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

True or False 1

Is it true or false? Check one.

Check true or false for each sentence.

1. A macromolecule is made of many small parts joined together. ☐ true ☐ false

2. A polymer is one small building block. ☐ true ☐ false

3. Glucose is a simple sugar. ☐ true ☐ false

4. Proteins are built from fatty acids and glycerol. ☐ true ☐ false

5. Enzymes are carbohydrates. ☐ true ☐ false

6. DNA is a nucleic acid. ☐ true ☐ false

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

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

Short Answers 1

Answer each question in sentences.

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

1. What is the difference between a monomer and a polymer? Give one example of each.

2. Name the four groups of macromolecules. Tell one job for each group.

3. How are carbohydrates and lipids alike? How are they different?

PREVIEW

My name _____ Date _____

Explain It 1

Explain your thinking in sentences.

Use what you know about the four groups. Say why.

Start with: I know that ____ because ____.

1. Why is starch called a polymer? Use the words glucose and monomer.

2. Lipids do not mix well with water. Why might that help a cell membrane?

3. An enzyme is a protein. What would happen to a reaction if its enzyme were missing?

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

Find the Mistake

Find the mistake. Then fix it.

Mara is made up for practice. Each sentence has one mistake.

1 **Mara wrote:**

"A lipid is a long chain of amino acids."

What is wrong?

Write it the right way.

2 **Mara wrote:**

"DNA is a protein that speeds up reactions."

What is wrong?

Write it the right way.

3 **Mara wrote:**

"A monomer is a long chain of many parts."

What is wrong?

Write it the right way.

4 **Mara wrote:**

"Starch is a lipid that plants use to store energy."

What is wrong?

Write it the right way.

PREVIEW

My name _____ Date _____

Exit Tickets

Answer each ticket before you go.

Each ticket takes about two minutes. Your teacher may collect them at the door.

1 Name the four groups of macromolecules. Tell one job for each group.

2 Pick one group. Tell what its building block is called.

3 What is one question about macromolecules that you still have?

PREVIEW

My name _____ Date _____

Cut and Paste 1: Jobs

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

Read each piece. Which group does the job belong to?

Carbohydrates	Lipids

Proteins	Nucleic Acids

Cut on the dashed lines: eight pieces, one cut across and three cuts down.

Speeds up chemical reactions	Gives cells quick energy	Stores genetic information	Does not mix well with water
Cellulose gives plant cell walls strength	Carries materials from place to place	RNA helps make proteins	Makes up cell membranes

Which piece was hardest to place? Why?

PREVIEW

Preview · Bright Path Sped

My name _____ Date _____

Cut and Paste 3: Building Blocks

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

Read each piece. Which group does it tell about?

Carbohydrates	Lipids

Proteins	Nucleic Acids

Cut on the dashed lines: eight pieces, one cut across and three cuts down.

Built from simple sugars	Built from nucleotides	Built from amino acids	Built from fatty acids and glycerol
Each unit has a sugar, a phosphate and a base	Folds into a special shape	Starch is a chain of glucose units	Three fatty acids join one glycerol

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	One small part that joins with others
5.2	A	Simple sugars, such as glucose
5.3	C	Store energy and make up cell membranes
6.1	B	Amino acids
6.2	C	A protein that speeds up a chemical reaction
6.3	A	DNA, a nucleic acid

Macromolecule Words page 9

Word	Letter	Meaning
1. macromolecule	D	a very large molecule made of many small parts
2. monomer	F	one small part that can join with others in a chain
3. polymer	B	a long chain made of many monomers
4. molecule	E	two or more atoms joined together
5. element	A	a basic substance, such as carbon or oxygen
6. enzyme	C	a protein that speeds up a chemical reaction

Match Building Blocks and Chains page 11

Word	Letter	Meaning
1. Monomer	D	One small part that joins with others
2. Polymer	G	A long chain of many monomers
3. Monosaccharide	B	A simple sugar, the building block of carbohydrates
4. Amino acid	E	The building block of proteins
5. Nucleotide	H	The building block of nucleic acids
6. Fatty acids and glycerol	A	What a fat or an oil is built from
7. Polysaccharide	F	A long chain of sugar units, such as starch
8. DNA	C	A nucleic acid that stores genetic information

Who Am I? page 12

Clue	Group
1. I store the instructions a cell us...	Nucleic acid
2. I am built from fatty acids and gl...	Lipid
3. I am built from amino acids....	Protein
4. I am a chain of sugar units, like ...	Carbohydrate
5. I do not mix well with water....	Lipid
6. I am an enzyme that speeds up a re...	Protein
7. I am made of nucleotides....	Nucleic acid
8. I give cells quick energy. I am a ...	Carbohydrate

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 18, 19

Item	Look for
18.1	A monomer is one small building block and a polymer is a long chain of many monomers. Examples: glucose (monomer) and starch (polymer), or an amino acid and a protein, or a nucleotide and DNA.
18.2	Carbohydrates, lipids, proteins and nucleic acids. Jobs: quick energy or stored energy (carbohydrates); store energy or make cell membranes (lipids); enzymes, building parts, carrying materials (proteins); store genetic information or help make proteins (nucleic acids).
18.3	Alike: both are made of carbon, hydrogen and oxygen and both are used for energy. Different: carbohydrates are built from simple sugars and give quick energy; lipids are built from fatty acids and glycerol, store a lot of energy and do not mix well with water.
19.1	Cells join about 20 kinds of amino acids in many different orders. Each chain folds into its own shape, and the shape decides the job.
19.2	Both are nucleic acids built from nucleotides. DNA stores genetic information; RNA helps make proteins from those instructions.
19.3	Foods are mixtures, so a food has some of each group but more of one. Mostly protein means protein is the biggest part. Any correct example: egg white, chicken or fish.

Explain it: what to look for pages 20, 21

Item	Look for
20.1	Starch is a long chain of many glucose units. Each glucose is a monomer, and a chain of many monomers is a polymer.
20.2	A membrane is a boundary. Because lipids do not mix well with water, a lipid layer can keep the watery inside of a cell apart from the watery outside.
20.3	The reaction would go much more slowly, because enzymes speed up chemical reactions.
21.1	DNA stores genetic information, the instructions a cell uses to make proteins. A cell needs it to build the proteins it needs.
21.2	Any correct difference: carbohydrates are built from simple sugars and lipids from fatty acids and glycerol; lipids do not mix well with water; carbohydrates give quick energy.
21.3	A food is a mixture. Bread is mostly carbohydrate but also has a little protein and fat, so only the word mostly is true.

Exit tickets

- Exit tickets (page 25): ticket 1 names all four groups with a correct job for each; ticket 2 names the building block of the group the student picked (simple sugars, fatty acids and glycerol, amino acids or nucleotides); ticket 3 is open.

PREVIEW

Macromolecules 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: Big Molecules, Small Parts	3			
6	Reading 2: Proteins and Nucleic Acids	3			
9	Macromolecule Words	6			
11	Match Building Blocks and Chains	8			
12	Who Am I?	8			
13	Label the Chain	9			
14	Label the Four Diagrams	8			
15	Fill In the Chart	12			
16	True or False 1	6			
17	True or False 2	6			
22	Find the Mistake	4			
23	Quiz A	6			
24	Quiz B	6			
27	Cut and Paste 1: Jobs	8			
28	Cut and Paste 2: Examples	8			
29	Cut and Paste 3: Building Blocks	8			
30	Cut and Paste 4: Foods	9			

PREVIEW

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 118 items on the 17 scored sheets. Answer keys: pages 31 to 35. Filled example: page 40.

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

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 and chart			
True or false			
Find the mistake			
Quizzes			
Sorts			

What I saw (observable, not a conclusion)

- Matched ___ of 16 words and clues (pages 11, 12).
- Labeled ___ of 17 parts (pages 13, 14).
- Got ___ of 12 true or false sentences right (pages 16, 17).
- Explained what one group of macromolecules 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 group is built from amino acids and which group is built from nucleotides." That is the level of detail this page is built for. It matches the filled example on page 40.

PREVIEW

Marcus's Tracker (Invented Student)

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

Student	Teacher	Month
Marcus L. (an invented student)	Ms. Rivera (invented)	October

Page	Page type and set	Items	Right	Date	Notes
5	Reading 1: Big Molecules, Small Parts	3	3	10/6	-
6	Reading 2: Proteins and Nucleic Acids	3	2	10/7	Mixed up enzyme and DNA
9	Macromolecule Words	6	5	10/8	Mixed up monomer and polymer
11	Match Building Blocks and Chains	8	6	10/9	Swapped polysaccharide and DNA
12	Who Am I?	8	-	-	-
13	Label the Chain	9	7	10/13	Missed bond both times
14	Label the Four Diagrams	8	-	-	-
15	Fill In the Chart	12	9	10/16	Left three example boxes blank
16	True or False 1	6	4	10/15	Thought enzymes are carbohydrates
17	True or False 2	6	-	-	-
22	Find the Mistake	4	-	-	-
23	Quiz A	6	5	10/20	Mixed up nucleotide and amino acid
24	Quiz B	6	-	-	-
27	Cut and Paste 1: Jobs	8	8	10/22	-
28	Cut and Paste 2: Examples	8	-	-	-
29	Cut and Paste 3: Building Blocks	8	-	-	-
30	Cut and Paste 4: Foods	9	-	-	-

How to read it

Marcus L. has done **9 of 17** scored sheets and got **49 of 61** 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: Proteins and Nucleic Acids (2 of 3) and True or False 1 (4 of 6). Those are where the next practice goes. The 8 sheets left blank are not tried yet, never wrong.

PREVIEW