

Name:

Date:

Section:

Glycogen Hydrolysis Activity: Energy Storage and Release

Sugar Storage: Breaking Down Glycogen!

Phase 1: ENGAGE (5 minutes)

Getting Started:

Open [peebedu.com](https://www.peebedu.com) and navigate to Glycogen Hydrolysis Lab

Watch the tutorial - it's like a video game for molecules!

The Big Idea:

Your body stores extra sugar (glucose) as glycogen - like a savings account for energy!

First Look:

1. What shape do you see? _____

2. What connects them? _____

Fun Fact:

One glycogen molecule can have 30,000 glucose units! That's a lot of energy!

Phase 2: EXPLORE (18 minutes)

Activity 1: Breaking It Down! 💧

Use the Hydrolyze tool (water drop) to break 5 bonds.

What Happens?

- ----- 75 _____

Cool Challenge:

Use the simulation to show what happens when you:

1. Eat a big meal: _____

2. Skip breakfast: _____

Phase 5: EVALUATE (7 minutes)

Show What You Know!

1. Vocabulary Match:

Draw lines to connect:

Glycogen • • Using water to break

Glucose • • Stored sugar chains

Hydrolysis • • Making bonds

Dehydration • • Single sugar unit

1. True or False (circle):

- T / F: Breaking bonds uses water
- T / F: Glycogen = many glucose
- T / F: Branches make breakdown slower
- T / F: Your muscles store glycogen

1. Problem Solving:

You have 30 water molecules.

- Maximum bonds you can break: _____

- Show your work: _____

1. Big Picture:

Why doesn't your body store pure glucose?

Think about:

- A jar of sugar cubes vs. a sugar sculpture

1. Design Challenge:

Draw the BEST glycogen for:

- A sprinter (fast energy): _____

Explain your designs: _____

Super Science Question:

If you ate only candy (pure glucose), what would happen? _____

- Good things: _____

- Why glycogen is better: _____

Exit Ticket:

Rate this lab! 🌟

- Fun factor: ★★★★★
- Learned new things: ★★★★★

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****Molecule Meanings:****

- **Glycogen:** Your body's energy savings account
- **Glucose:** Quick energy money
- **Hydrolysis:** Breaking with water
- **Bond:** Molecular connection
- **Enzyme:** Molecular scissors (mentioned in challenges)

Key Vocabulary:

See activity for vocabulary specific to this topic.