

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Section: \_\_\_\_\_

## Electron Transport Chain Activity

### How Cells Make Energy

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#### Phase 1: ENGAGE (2 minutes)

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**Getting Started:** Open [peebedu.com](http://peebedu.com) and navigate to Electron Transport Chain

Look at the introduction screens.

**Think About It:** Why do you need to breathe oxygen to stay alive? \_\_\_\_\_

## Phase 2: EXPLORE (6 minutes)

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### Watch the Energy Factory

Start the simulation and observe.

### What You See:

#### The Players:

- Yellow dots are: \_\_\_\_\_

- The spinning wheel makes: \_\_\_\_\_

**The Process:** Watch the yellow electrons move.

- They pass through numbered boxes called: \_\_\_\_\_
- As they move, blue protons get pumped: UP / DOWN

#### The End:

- Electrons meet oxygen to form: \_\_\_\_\_

### Try This:

**Turn Off Oxygen:** Set oxygen to zero.

- What happens? \_\_\_\_\_

### Phase 3: EXPLAIN (5 minutes)

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#### How It Works

**The Energy Chain:** Number these in order (1-4): \_\_\_ ATP is made \_\_\_ Electrons enter from food molecules \_\_\_ Protons get pumped out \_\_\_ Oxygen accepts electrons

**Like a Water Wheel:** ATP synthase spins like a water wheel.

- What makes it spin? \_\_\_\_\_

#### Why Oxygen?

Oxygen is like a magnet for electrons. Without it: \_\_\_\_\_

## Phase 4: ELABORATE (1 minute)

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### Real Life

Circle the best answer:

When you exercise hard, you breathe faster to get more:

This oxygen helps your cells:

## Phase 5: EVALUATE (1 minute)

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### Quick Quiz

Fill in the blanks:

Food gives us \_\_\_\_\_ → They flow through the chain → This pumps \_\_\_\_\_ → Which spin the ATP maker → Creating \_\_\_\_\_ energy

**Final Question:** Why would you feel weak and tired if your mitochondria stopped working?

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**Cool Fact:** A single cell can have thousands of these electron transport chains working at once!

### Key Vocabulary

See activity for vocabulary specific to this topic.