

Your group gets to explain Glycolysis! Check the relevant section in your textbook for help.

Steps you will need to explain:

1. Where in the cell does glycolysis occur?
2. What molecule is used to start glycolysis and how many carbons does it have?
3. What happens to the molecule that starts glycolysis?
4. Do reactions of glycolysis produce any ATP? How many per molecule of glucose?
5. What is the main product of glycolysis? Where in the cell does it go?
6. Draw a diagram of a cell and show where glycolysis occurs and where the products go.

Your group gets to explain the Citric Acid Cycle (a.k.a. the tricarboxylic acid cycle = TCA): Use the relevant sections in your text for help.

Steps you will need to explain:

1. Where does the TCA cycle occur?
2. What molecule is the input to the TCA cycle? Where does this molecule come from?
3. What molecules are the output of the TCA cycle?
4. How many ATP molecules are produced in the TCA cycle (per molecule of glucose that started cellular respiration)?
5. Which products of the TCA cycle are used in later reactions of cellular respiration?
6. What is another name for the citric acid cycle?

From cytoplasm to mitochondrion

1. What molecule moves from the cytoplasm into the mitochondrion?
2. What sequence of reactions occurs to convert that molecule to the starting substrate of the citric acid cycle?

Where do all these reactions happen?

Use the laminated mitochondria and place the labels and components in the correct place.

Draw your answer below.

Teaching Tips for Peer Leaders

The goal of this recitation is for students to **describe** the inputs and outputs of glycolysis and the citric acid cycle. Emphasize that glycolysis is a series of reactions, not just one reaction. The citric acid cycle is also a series of reactions, not a single reaction.

1. Assign each group to explain either glycolysis or the citric acid cycle.
2. Each group should use their notes and the textbook to do the worksheet on their topic.
3. Check their answers, then pair a Glycolysis Team with a TCA cycle Team. Teams should explain their topics to each other. Have the mini-whiteboards and dry-erase markers on the tables.
4. Go over the answers as a class so you can emphasize key points and how to study for the exam. You can project the page on the board and have students come up and fill it in after you've given them a little time to work on it.
5. Point them to the questions on page 3 "From cytoplasm to mitochondrion." Make sure they can explain the link between the output of glycolysis and the input to the citric acid cycle.
6. Have students use the laminated mitochondria and place the labels and components of glycolysis and the citric acid cycle in the correct place. They should **draw** their answer. If they take a picture of their completed mitochondria with their cell phone or iPad, that's okay but they need to be able to draw and label everything starting with a blank page. Stress the importance of self-testing to prepare for the exam.

Notes to Faculty

Materials: An image of a mitochondrion and multiple images of ions, molecules, and proteins important in cellular respiration are included in the accompanying pdf file: Mitochondrial 2D Model.