

Name _____

CALVIN CYCLE ANIMATION

DIRECTIONS— View the animation of the Calvin Cycle at the following url: <http://www.science.smith.edu/departments/Biology/Bio231/calvin.html> and address each of the items in the spaces provided.

1. Click stage one, watch the progression of the animation and address the following questions:

- A. What is the source of carbon atoms?
- B. What is the step called when a C from CO₂ is attached to RuBP (its not in the animation but we talked about it in class)?
- C. How many carbons does RuBP have?
- D. How many carbons does the molecule have once a carbon (from CO₂) is attached to RuBP?
- E. What immediately happens to the resulting molecule once a carbon is attached to RuBP?
- F. What is the name of the resulting molecules at the end of stage 1?
- G. How many carbons are in each of the resulting molecules?
- H. How many total carbons are present at the end of stage 1?

2. Click stage two, watch the progression of the animation and address the following questions:

- A. What does ATP do when it reacts with each of the 3-PGA molecules?
- B. What does NADPH do when it reacts with each of the 3-PGA molecules?
- C. How many total ATP molecules are used in this step?
- D. How many total NADPH molecules are used in this step?
- E. Where do the oxidized ADP and NADP⁺ molecules go after stage 2 (its not talked about in the animation but we talked about it in class)?
- F. How many of the resulting G3P molecules are removed from the cycle to form sugars and other biomolecules?
- G. How many total C are in one G3P molecule

- H. How many of the resulting G3P molecules continue in the cycle?
- I. How many total C are in the remaining G3P molecules that continue in the cycle?

3. Click stage three, watch the progression of the animation and address the following questions:

- A. How many three C molecules do you have at the beginning of stage 3?
- B. How many five C RuBP molecules do you have at the end of stage 3?
- C. What is the source of energy used to re-arrange the 5 3-C G3P molecules to 3 5-C RuBP molecules?