



## The Bicycle as a System

- a. Identify at least six parts of the bicycle. If you don't know the name of a part, make up a name. Tell what function each part has.
- b. The seat is one part of the bicycle. Tell me three words or phrases that describe the seat. Do any of these words or phrases also describe the whole bicycle?
- c. Could any part of this bicycle be made of a different material and still help the bicycle carry out its function?
- d. Can any one part of the bicycle carry out the job of the whole bicycle? Explain your answer.
- e. What parts of the bicycle must work together if you want to ride around a corner?
- f. Can you take a part from another bicycle and use it to replace a part in this bicycle and still have the bicycle carry out its function?
- g. Could some parts of the bicycle be arranged differently and the system still carry out its function? Explain your answer.
- h. Can you identify any subsystems within the whole bicycle system? If so, describe one subsystem.
- i. Does the bicycle require symmetry among any of its parts? If so, describe the symmetry.
- j. What will happen to the bicycle if one part, such as a spoke, breaks? What if all the spokes on a wheel break?
- k. Is it useful to think of a bicycle as a system? Justify your answer.