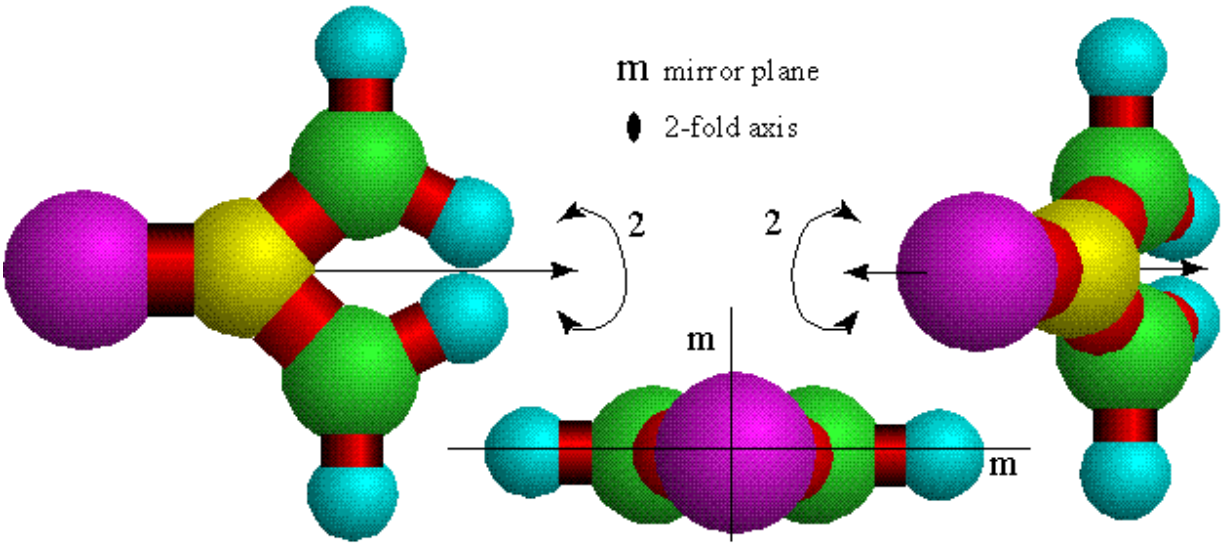
Diagrams Worksheet 1

The following is a diagram of a molecule of thiourea.



[Diagram from: http://www.gh.wits.ac.za/craig/diagrams/]

Thiourea's chemical symbol is $CO(NH_2)_2$.

Use the following information to answer the questions below:

- Carbon atoms always form four bonds.
- Carbon atoms can form a double bond with oxygen.

Which color most likely represents the oxygen (O) atom? _____

Which color most likely represents the carbon (C) atom? _____

Which color most likely represents the nitrogen (N) atom? _____

Which color most likely represents the Hydrogen (H) atom? _____

Which color most likely represents the bonds between atoms? _____

Why is thiourea referred to as a symmetrical molecule?

_____

_____

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jeigenauer@yahoo.com

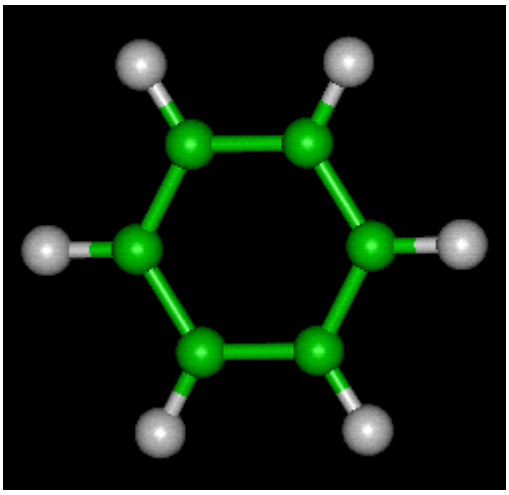
Diagrams Worksheet 2

Below is a diagram of a benzene molecule (C_6H_6).

Consider the following information:

- The gray atoms on the outside are hydrogen.
- The green atoms on the inside are carbon.
- Hydrogen forms one bond with one other atom.
- Carbon forms four bonds.

Using lines to represent chemical bonds, the letter "H" to represent hydrogen and the letter "C" to represent carbon, draw a diagram to the right of the diagram below that shows that atoms of benzene and the bonds between the atoms. The challenge is to find a way to represent four bonds for every carbon atom.



[Picture from: http://www.worldofmolecules.com/solvents/benzene.htm]

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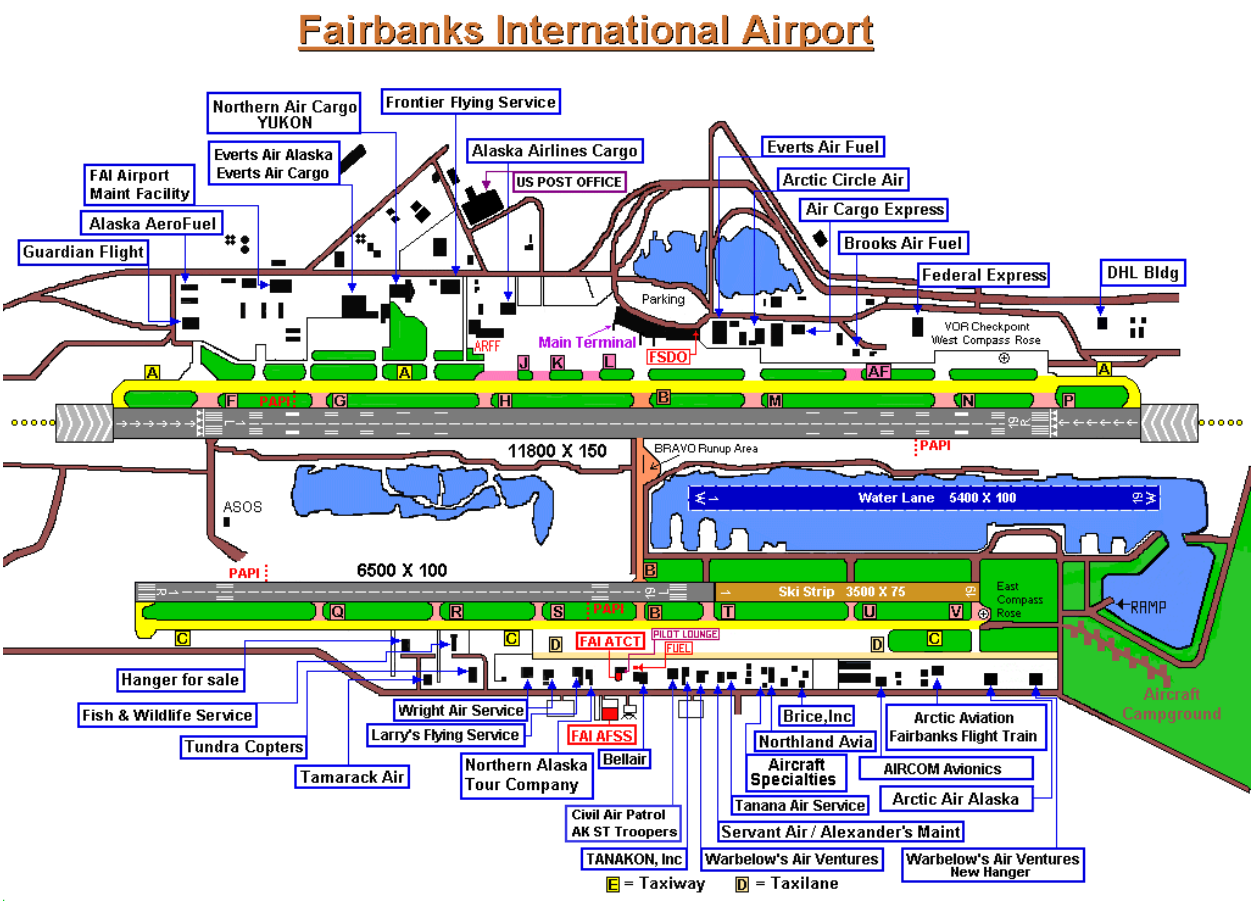
Diagrams Worksheet 3

Use the diagram below of the Fairbanks International Airport to answer the questions below.



[Picture from: http://www.alaska.faa.gov/fai/afss/]

State three reasons why you think that the two runways serve separate purposes.

_____

_____

_____

What purpose do you think the lake behind the parking lot serves?

_____

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What is the purpose of the pink regions between the gray runways and the yellow regions?

_____

_____

Why might the Fish and Wildlife Service maintain an office at the airport?

_____

_____

Why is one runway longer than the other?

_____

If UPS were interested in establishing an office at this airport, where might the company put the office? Explain why this would be so.

_____

_____

_____

_____

What kind of business does Tundra Copters probably conduct? Base your answer upon information from the diagram and explain how you used that information to reach an answer.

_____

_____

_____

_____

What reasons are there to believe that the four small bodies of water between the runways are natural, rather than man made?

_____

_____

_____

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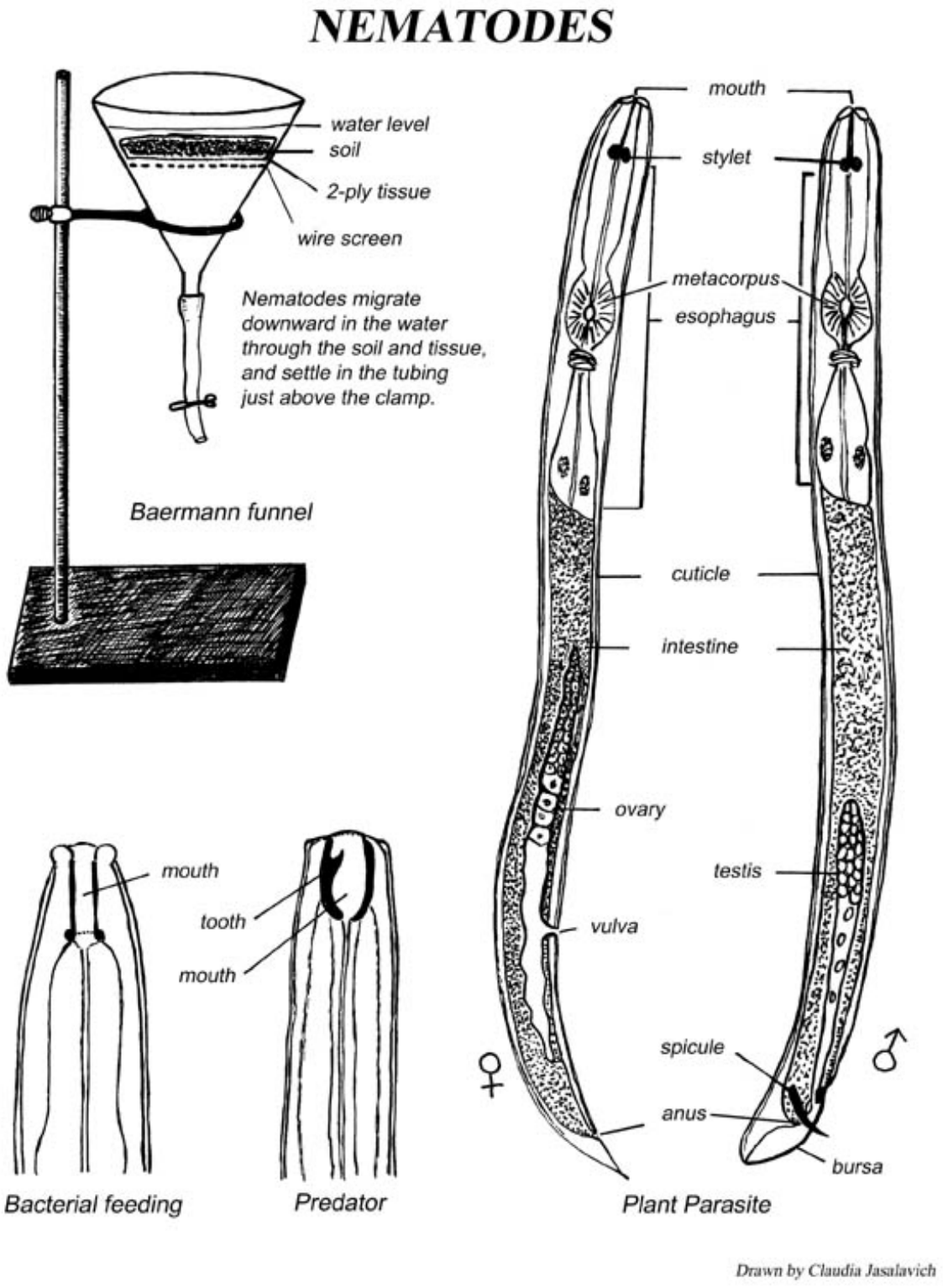
Diagrams Worksheet 4



[Diagram from: http://www.apsnet.org/education/K-12PlantPathways/TeachersGuide/Activities/Nematode/Images/t2nema.jpg]

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Using the diagram of the nematodes on the previous pages, answer the following questions.

1. Which of following are probably true (you may choose more than one answer).

    a. Nematodes reproduce sexually.
    b. Nematodes digest food.
    c. Nematodes possess a rudimentary nervous system.
    d. Relative to most worms, nematodes are large.

2. Based upon nematode physiology illustrated about, what are nematodes' two main functions?

    _____

    _____

3. What system does the metacorpus belong to?

    _____

4. What distinguishes a predatory nematode from a bacterial feeding nematode?

    _____

5. What is the "cuticle" of the nematode probably like? What reasons do you have for concluding this?

    _____

    _____

    _____

6. What function does the "stylet" probably serve in the nematode? What reasons do you have for concluding this?

    _____

    _____

    _____

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