

## **MPS 12 Learning skills**

1.1 given a term listed under "concepts introduced", you should be able to give a word definition, list pertinent characteristics and cite an example.

1.2 you will be able to state the things you can do to improve your retention of information.

2.1 given a topic, you will be able to complete a Larkin checklist: verbal, visual and equation, list of the kind, signs, units and typical magnitudes of all of the quantities in the equation, the meaning in words of all concepts, identify any similar concept or symbol that might cause confusion and identify when this is applicable. Larkin's checklist was developed for Science. Similar "checklists" can be created for other subjects. This will agree 80% with the checklist from the tutor.

2.2 given a topic in your subject discipline, you will be able to classify it as a fundamental law, a theory, a concept, a model, an empirical correlation, a semi-empirical correlation, a definition, or a convention. These will agree 100% with the classification by the tutor.

2.3 given a definition, you should be able to identify the concept, the usual symbol used, the units of measurement and typical orders-of-magnitude.

3.1 given a set of lecture notes, you will be able to classify the information: fundamentals, concepts, worked example, experience knowledge, problem-solving hints.

3.2 for your subject area, you will be able to list 20 key experience factors (their numerical value and their units) for each 1 week of learning activity.

4.1 given a textbook, you will be able to list the features that help you identify the structure of the information.

5.1 given your personal response to the questionnaires related to learning style, you will be able to list the implications for your learning.

### **Concepts introduced**

Larkin's checklist, Gowin vee, beetle diagram, fundamental law, theory, concept, model, empirical correlation, semi-empirical correlation, definition, convention, experience factor, units.

**MPS 12: Learning skills: Example assessment tasks:**

**Time 1. Learning**

25 min Complete a Larkin Checklist for "Henry's Law." Use the form given in Table 2.

2. Figure 1 shows a time schedule that Pierre has prepared for his week. Comment on his schedule with respect to how well he has accounted for improving his retention of the information. Modify it, where applicable.

(7 min)6. What are reasonable, order of magnitude values for the following:

the density of liquid water \_\_\_\_\_

the vapour pressure of benzene at 100°C \_\_\_\_\_

the heat of vaporization of water \_\_\_\_\_

the density of air at room temperature \_\_\_\_\_

the compressibility factor for "nonideality" for a gas at a pressure of 10 atmos. \_\_\_\_\_

for a reactor producing compounds like ammonia and methanol, the fraction of the reactor exit stream that would be recycled

\_\_\_\_\_

the percentage of a recycle stream that is usually sent to purge \_\_\_\_\_

\*\*\* end of question 6 \*\*\*