

SAMPLE LESSON PLAN

PREFACE

This module could stand alone with a scope that is limited to understanding the properties and uses of ferrofluids. As such it would act as a technology supplement to the standard chemistry curriculum and the following lesson plan would fulfill that objective. If, however, the module were to be used in conjunction with the topics included in the curriculum suggestions, then the lesson plan below might be considered as a framework from which an overall plan may be constructed.

- DAY 1** Conduct Demonstration 1 to introduce the topic of ferrofluids as well as to observe and explain some of their unique properties. Use the follow-up questions in conjunction with the background information for this unit to facilitate this introduction.
50 min.
- DAY 2** Have students do Investigation 1. Allow the students ample opportunity to explore the properties of the fluid and to ponder the follow-up questions. If questions arise that would necessitate further experimentation, try to provide the time necessary to do so.
50 min.
- DAY 3** Discuss the results of Investigation 1. It might be a good idea to further demonstrate close-packed arrangements using marbles in a Petri dish on the overhead projector or other such demonstrations.
15 min
- 35 min Introduce Investigation 2. If the students have not built and analyzed such models before, it will first be necessary to discuss unit cells. Appendix A of the Memory Metal Module of the manual contains a detailed discussion of unit cells.
- DAY 4** Have students perform Investigation 2.
- DAY 5** Discuss Investigation 2. It will probably be necessary to have the models available during the class discussion so that you can assist in counting the number of atoms occupying the various sites in these structures. Pre-lab Experiment 1.
- DAY 6** Have students carry out Experiment 1.
- DAY 7** Discuss Experiment 1 and complete the discussion of ferrofluids by presenting some of their applications and asking the students for any others they may have thought about as they conducted their work.
- DAY 8** Use the In-Class Discussion Questions as a review of the unit.
- DAY 9** Unit Exam (**See the Ferrofluid Assessment at the end of the unit.**)