Activity 1

What You Need

For the class:
- Overheads #1, #2, and #3. Additional sets are available for purchase from Carolina Biological Supply, the authorized GEMS Kits® distributor.
- 2 balls, one much larger than the other, for example: a softball and a ping pong ball, or a tennis ball and a marble.
- 1 slide projector and screen
- (optional) 1 overhead projector
- (optional) 1 set of overhead projector pens
- (optional) 4 transparencies of the “Tracking Jupiter’s Moons” data sheet (master on page 16)

For each student:
- 1 copy of “Tracking Jupiter’s Moons” data sheet (page 16)
- 1 pencil

Activity 2

What You Need

For the class:
- Overheads, including
  - #4 Earth’s Moon
  - #5 Close-Up of Large Crater
- 1 slide projector and screen
- 1 or more brooms or whisk brooms to clean up spills
- 1 pair of scissors or a paper cutter (to cut the centimeter rulers off the student data sheets)
- one container instant chocolate milk powder. (Note: Real cocoa has also been used, but it tends to clump and to over-darken the flour too quickly.)
- three or four 5-pound packages of white flour

For each team of 4 students:
- 1 shallow basin (to be filled with about 3 to 5 inches of flour) Examples: a dishpan, a heavy aluminum roasting pan, or cardboard box. To be sure to have enough, you may want to ask a student from each group to bring in a dishpan from home for the day of the activity. They don’t all have to be the same size.
- 1 cup or small plastic container (to be filled about one-third full with powdered instant chocolate milk mix)
- an old newspaper
- three rocks: small, medium, and large with diameters about: .5 cm (¼ inch), 2 cm (¾ inch) and 4 cm (about 1.5 inches)
- 1 spoon (plastic or metal)

For each student:
- 1 pencil
- 1 “Craters” activity sheet (master on page 28)
Activity 3

What You Need

For the class:
☐ 1 meter stick
☐ 1 roll of tape (masking or clear)
☐ an Earth globe (or blue balloon, or ball) about 25 cm, or 10 inches in diameter
☐ 2 white balloons or balls (about 7 cm, or 3 inches in diameter, inflated)
☐ a model car or any other example of a scale model
☐ a piece of chalk
☐ a pair of scissors
☐ a length of string 1.5 meters (5 feet) long
☐ a thick black felt pen and assorted crayons
☐ 4 manila file folders
☐ 1 copy of the data sheets for Session 4 (master on pages 49, 50), used as described in Getting Ready for the Jupiter Scale Model, #5, below.

Activity 4

What You Need

For the Class:
☐ 1 slide projector
☐ The Teacher Fact Sheets, pages 45–48
☐ Overheads, including:
    # 6
    # 7
    # 8
    # 9
    # 10
    # 11
    # 12

For each team of 4–5 students:
☐ 1 box of crayons

For each student:
☐ 1 pencil
☐ data sheets (masters on pages 49, 50)
    Callisto and Ganymede
    Io and Europa with the US map for scale
Activity 5

What You Need

For the class:

☐ 1 or 2 boxes of raw material or “doo-dads” for settlement building. “Doo-dad” suggestions include: plastic or paper cups, small containers (such as empty yogurt or orange juice containers), packaging material (such as plastic casings on small items, clear “bubble-wrap” and styrofoam “peanuts” and other packing materials), egg cartons, styrofoam meat trays, cardboard tubes, corks, straws, film canisters, scrap wood, colored paper or poster board, assorted stickers—YOU NAME IT!

Note: To reduce clean-up time, limit the amount of styrofoam peanuts to about four cups.

☐ 1 or 2 skeins of color yarn or string
☐ 1 or 2 rolls of aluminum foil
☐ 1 roll of plastic wrap
☐ 1 box of toothpicks
☐ 1 box of straws
☐ 1 package of blank stick-on labels (masking tape can also be used)
☐ chalk and chalkboard, or overhead projector, unused transparency, and pens
☐ Optional: tools for use by teacher or under direct supervision, such as pliers for bending wire, utility knife for cutting tubes or styrofoam, etc.

For each group of 4–5 students:

☐ 1 posterboard, about 30 cm x 60 cm (about 1 ft. x 2 ft.). These serve as the base for each team’s settlement (size can be adjusted to your preference)
☐ 1 or 2 glue bottles or glue sticks
☐ 1 or 2 scissors
☐ assorted color marking pens
☐ 1 roll of masking or cellophane tape
☐ Appropriate “Scientific Mission” data sheet for each student (masters on pages 60-63)