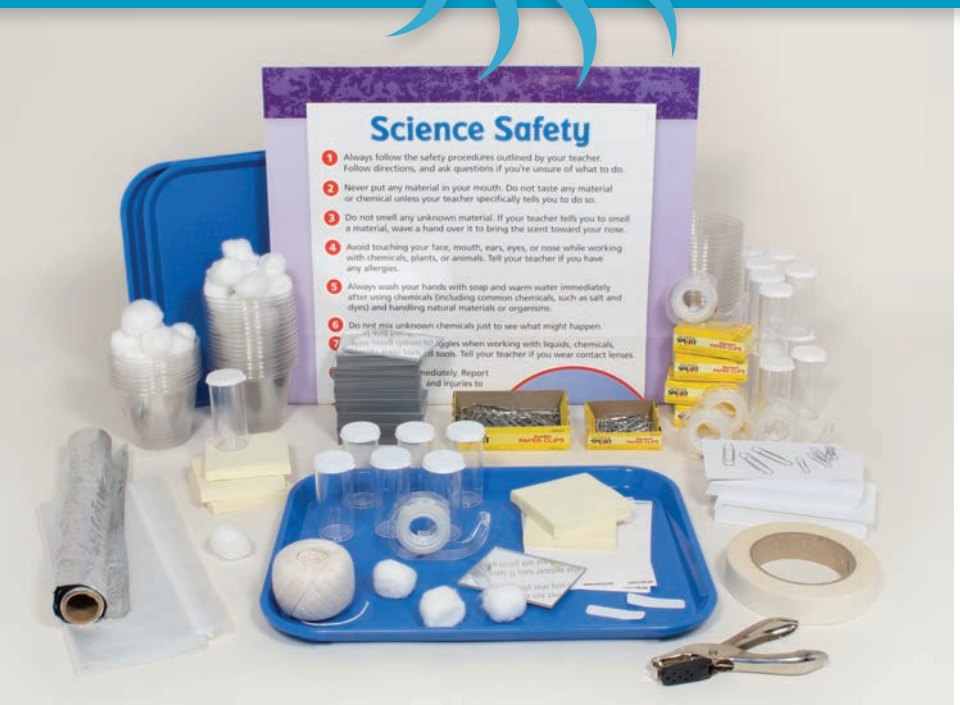


Contents

INTRODUCTION

The Human Systems Interactions kit contains

- *Teacher Toolkit: Human Systems Interactions*
  - 1 *Investigations Guide: Human Systems Interactions*
  - 1 *Teacher Resources: Human Systems Interactions*
  - 1 *FOSS Science Resources: Human Systems Interactions*
- *FOSS Science Resources: Human Systems Interactions* (class set of student books)
- Equipment for 5 classes of 32 students

Each investigation in this course is divided into two to four parts. Each part has a Materials section that details the materials in the kit and the materials supplied by the teacher that will be used by each group of students and the class. The kit includes most of the learning equipment needed by students. There are enough consumable materials in the kit for 5 classes of 32 students each. Some of the teacher-supplied items can also be ordered through Delta Education.

For each investigation, you will need one computer with Internet access that can be displayed to the class, either by an LCD projector, interactive whiteboard, or large screen.

For updates to information on materials used in this course and access to the Safety Data Sheets (SDS), go to www.fossweb.com. Links to replacement-part lists and customer service are also available on FOSSweb.

NOTE
Delta Education Customer Service can be reached at 1-800-258-1302.

KIT INVENTORY *List*

Drawer 1—permanent equipment

		Equipment condition
1	*Teacher Toolkit: Human Systems Interactions* (1 *Investigations Guide*, 1 *Teacher Resources*, and 1 *FOSS Science Resources: Human Systems Interactions*)	
32	*FOSS Science Resources: Human Systems Interactions*, student books ★	
1	Aluminum foil, roll, 23 m (25')	
16	Braille strips	
17	Card sets, Structural Levels, 8 cards/set	
50	Cups, plastic, 250 mL (9 oz.)	
1	Hole punch	
84	Labels, removable, 1 × 4.5 cm ✪	
36	Mirrors	
1	Poster, *FOSS Science Safety*	
1	Poster set, Systems, 8 posters/set	
4	Stopwatches	
1	String, ball, 30 m/ball	
1	Tape, painter's, roll	
3	Trays, cafeteria	
24	Vials, with caps, 12 dram	
5	Zip bags, 4 L ✪	

★ The student books are shipped separately in two boxes of 16 hardbound books each.

NOTE
The teacher toolkit is shipped separately. However, there is space in drawer 1 to store your toolkit.

Drawer 1—consumable equipment

100	Cotton balls
200	Index cards, 7.5 × 12.5 cm (3" × 5")
100	Paper clips, jumbo
500	Paper clips, regular
500	Self-stick notes, 7.5 × 7.5 cm (3" × 3")
8	Tape, transparent, rolls, 16.5 m/roll

✪ These items might occasionally need replacement.

MATERIALS *Supplied by the Teacher*

Each part of each investigation has a Materials section that describes the materials required for that part. It lists materials needed for each student or group of students and for the class.

Be aware that you must supply some items. These are indicated in the materials list for each part of the investigation with an asterisk (*). Here is a summary list of those items. Some of the supplies and tools are available from Delta Education. Check the replacement-part list for the course on FOSSweb.

Technology equipment

- Computers with Internet access

1 Document camera or overhead projector

1 Projection system

- Extension cords with multiple outlets (optional)

Measuring tools

32 Rulers (optional)

Paper

- Butcher paper, dark (optional)

12 Card stock, 22 × 28 cm (8.5" × 11") (optional)

- Chart paper
- Science notebooks (composition books)
- White paper, 28 × 44 cm (11" × 17")
- White paper, 22 × 28 cm (8.5" × 11")

Supplies

- Extracts/scents
- Glue sticks (optional)
- Nutrition labels
- Rubbing alcohol

8 Sheet protectors, plastic (optional)

- Transparent tape (optional)
- Water bottle with nutrition label

NOTE

Throughout the *Investigations Guide*, we refer to materials not provided in the kit as "teacher-supplied." These materials are generally common or consumable items that schools and/or classrooms already have, such as rulers, paper towels, and computers. If your school/classroom does not have these items, they can be provided by teachers, schools, districts, or materials centers (if applicable). You can also borrow the items from other departments or classrooms, or request these items as community donations.

Other tools

16 Calculators
32 Colored pencils, eight different colors, four of each color
1 Dollar bill, crisp
8 Erasers, whiteboard (optional)
• Marking pens and highlighters
8 Marking pens, whiteboard (optional)
1 Memory-test set (key, paper bag, stapler, book, paper clip, ruler, comb, dollar bill, fork, cork)
8 Mini-whiteboards (optional)
32 Scissors

IMPORTANT *Information for First-Time FOSS Users*

If this is your first time using a FOSS middle school course, you should become familiar with a few items before beginning instruction. These steps will also prepare you to teach any other FOSS middle school course.

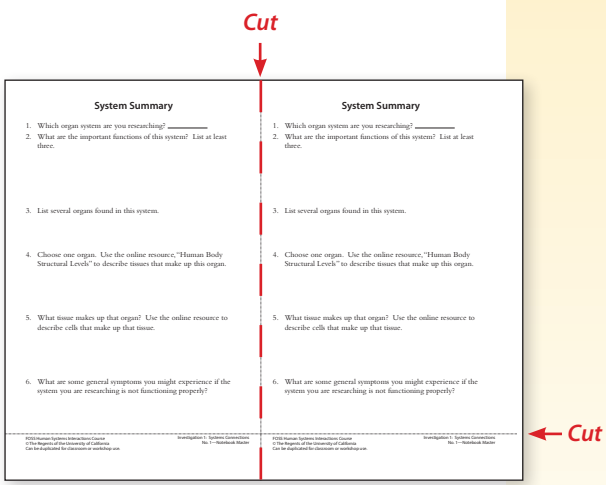
1. Plan for student notebooks

In FOSS, students keep science notebooks both as organized records of their scientific investigations and as places to reflect about their thinking. Notebook opportunities appear in each part of each investigation.

Students will need their own notebooks dedicated for use in science class, in which they can record focus questions, observations, data, conclusions, their own questions, and so on. These notebooks are typically bound composition books in which students make entries and glue or tape photocopied notebook sheets or other artifacts.

In preparation for each part of each investigation, you will print or make copies of the specified notebook masters. You can copy the preprinted notebook masters from *Teacher Resources* or download digital versions from www.FOSSweb.com. Each notebook master consists of two copies of a notebook sheet, so each photocopied page will need to be cut in half. Sometimes you might prefer to project a notebook master and have students copy some information from the notebook sheet into their notebooks, adding their own data and responses.

In the first investigation, make sure students have prepared their notebooks by setting up a table of contents, creating an index for vocabulary words, and numbering the pages. For more information on notebook use in FOSS, see the Science Notebooks in Middle School chapter.



Notebook master

TEACHING NOTE

Notebook sheets are available on FOSSweb in several formats. For each notebook sheet, you can select "to photocopy," which will be identical to the printed notebook masters in Teacher Resources*, or "to project," which is rotated and zoomed for easier display. You can also type into these notebook sheets while projecting them.*

2. Plan for online activities and projection

Throughout this course, you will need to project digital components through your computer for the class to see. The Getting Ready section for each part will indicate what to prepare.

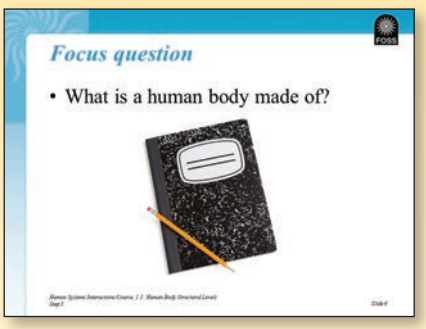
In general, you will need regular access to a computer with Internet access, a document camera, and either an LCD projector or a large-screen display. If regular projection is difficult given your classroom setup, you could use the notebook masters and teacher masters to make transparencies for use with a document camera or an overhead projector.

For other projection needs, such as displaying a FOSSweb program, you will need to make sure students can see the computer display.

3. Become familiar with FOSSweb

If you have never logged into FOSSweb before, visit the site to set up your account. The site is used throughout the course to project teacher masters and notebook sheets, display digital components, such as animations and simulations, and provide student access to course resources and assignments that you create. For more information on how to set up an account and to access the digital resources, see the Technology chapter in *Teacher Resources*.

Once you've logged in, familiarize yourself with the layout of the site and the additional resources available to you there. The easiest way to access resources is by clicking the icon for the course and going to Resources by Investigation.



Teaching Slides

4. Review teaching slides

The teaching slides are a series of editable slides for you to use with your class as an instructional tool. There is one set of slides for each part of each investigation. Look for the teaching slides under Digital-Only Resources on FOSSweb.

5. Plan groups

Plan to organize students into groups of four around lab benches or tables. Seating should facilitate students' working together and sharing observations and ideas. The "for each group" section of the materials list will always describe the materials needed by a group of four students.

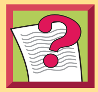
6. Display safety poster

Display the *FOSS Science Safety* poster in a prominent location in the classroom.

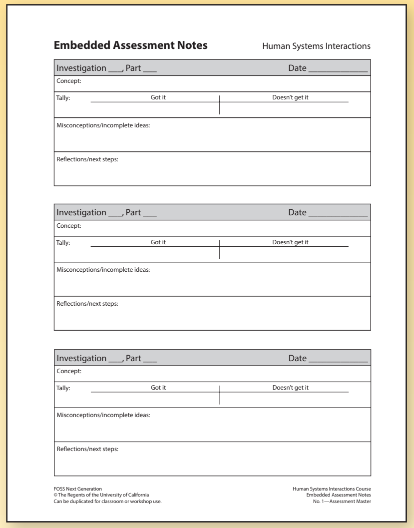
7. Set up a materials station

Plan to establish a materials station where students will always pick up and return materials. Select a location that minimizes congestion and provides easy supervision as needed.

8. Assess progress throughout the course




Embedded (formative) assessments provide a variety of ways to gather information about students' thinking while their ideas are developing. These assessments are designed to be diagnostic. They provide you with information about student learning so that you know if you need to plan a next step to clarify understanding before going on to the next part of the investigation. Each Getting Ready section describes an embedded-assessment strategy you may find useful in that part. Two assessment masters, *Embedded Assessment Notes* and *Performance Assessment Checklist*, are provided as tools to help you analyze students' data (see the Assessment chapter for more on how to use these tools). The *Performance Assessment Checklist* is in two formats, one for individual students and one for groups.



Embedded Assessment Notes Human Systems Interactions

Investigation ___, Part ___ Date ___________
Concept:
Tally: Got it | Doesn't get it
Misconceptions/incomplete ideas:
Reflections/next steps:

Investigation ___, Part ___ Date ___________
Concept:
Tally: Got it | Doesn't get it
Misconceptions/incomplete ideas:
Reflections/next steps:

Investigation ___, Part ___ Date ___________
Concept:
Tally: Got it | Doesn't get it
Misconceptions/incomplete ideas:
Reflections/next steps:

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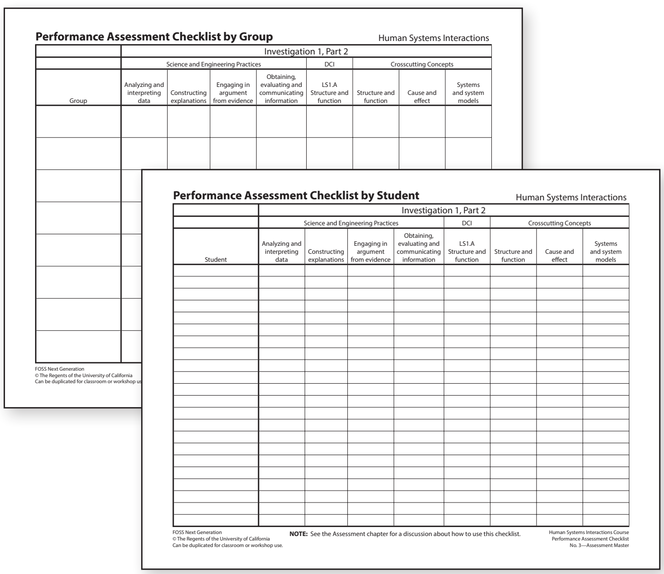
Human Systems Interactions Course
Embedded Assessment Notes
No. 1—Assessment Master

Embedded Assessment Notes

At the end of most investigations, there is an I-Check benchmark assessment. The questions on these assessments are summative —they examine all the concepts students have learned up to that point in the curriculum. You can find out more about I-Check assessments in the Assessment chapter and in Investigation 2. Use the *Assessment Record* to record results. Check FOSSweb for downloadable spreadsheets for the *Perfomance Assessment Checklist* and *Assessment Record*.



Performance Assessment Checklist by Group Human Systems Interactions

	Investigation 1, Part 2							
	Science and Engineering Practices				DCI	Crosscutting Concepts		
Group	Analyzing and interpreting data	Constructing explanations	Engaging in argument from evidence	Obtaining, evaluating and communicating information	LS1.A Structure and function	Structure and function	Cause and effect	Systems and system models

Performance Assessment Checklist by Student Human Systems Interactions

	Investigation 1, Part 2							
	Science and Engineering Practices				DCI	Crosscutting Concepts		
Student	Analyzing and interpreting data	Constructing explanations	Engaging in argument from evidence	Obtaining, evaluating and communicating information	LS1.A Structure and function	Structure and function	Cause and effect	Systems and system models

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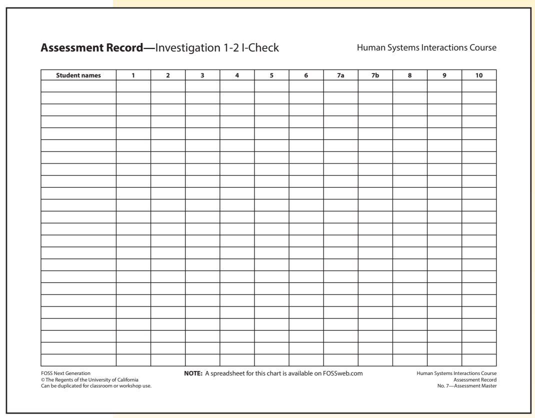
NOTE: See the Assessment chapter for a discussion about how to use this checklist.

Human Systems Interactions Course
Performance Assessment Checklist
No. 3—Assessment Master

Performance Assessment Checklists



Assessment Record—Investigation 1-2 I-Check Human Systems Interactions Course

Student names	1	2	3	4	5	6	7a	7b	8	9	10

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NOTE: A spreadsheet for this chart is available on FOSSweb.com

Human Systems Interactions Course
Assessment Record
No. 7—Assessment Master

Assessment Record

PREPARING *the Kit for Your Classroom*

Some preparation is required each time you use the kit. Doing things before beginning the course will make daily setup quicker and easier.

Each part of each investigation includes a section called Getting Ready, which describes what you need to do or consider to be prepared to conduct the part.

Note that a few items are consumable, but there should be enough in the kit for at least five classes before you need to restock.

One-Time Preparation

Some of the preparation will need to be done only once. Here are things that require one-time preparation.

Investigation 1, Part 1

Check Structural Levels card sets.

Investigation 2, Part 1

Gather eight food packages with nutrition labels (students can bring them in). You can use these from year to year. Obtain one plastic drinking bottle with a nutrition label.

Investigation 3, Part 2

Print or make a copy of teacher masters H–J, *Neural-Message Relay Cards A–C*, for each group of eight students (two groups of four will share one set). Prepare bags of group materials for the neural message relay.

Investigation 3, Part 3

Obtain eight different scents or extracts. Prepare scent vials using cotton balls and labels. The vials may need to be refreshed from year to year, using the same scents if at all possible.

SAFETY NOTE

Be sure to find out if any students have allergies or sensitivities to extracts or scented oils.

Review Safety Guidelines

There is a safety poster in the kit. Consider how to introduce the class rules so that everyone has a safe science experience.

Reserve Computers

Students should have access to computers or tablets in pairs or groups throughout the course. This is especially important in these parts:

- Investigation 1, Part 1, for homework
- Investigation 1, Part 2, for group research
- Investigation 2, Part 1, for online activity
- Investigation 2, Part 2, for online activity
- Investigation 3, Part 1, for online activities
- Investigation 3, Part 3, for online activities

Plan ahead to use multiple computers at those times.

Sequential Classes

The materials are designed to be used with sequential classes. Organize a materials station in a central location in the classroom. Organize the materials at the station before first period. Each period, the appropriate materials are picked up for each group by a Getter, used for the investigation, inventoried by students at the end of the period, and returned to the materials station by a Getter. You can quickly review the materials station to ensure that all the materials came back (and take appropriate action if they didn't) and that the materials are ready for the next class.

CARE, *Reuse, and Recycling*

When you finish teaching the course, inventory the kit carefully. Note the items that were used up, lost, or broken, and immediately arrange to replace the items. Use a photocopy of the *Kit Inventory List*, and put your marks in the "Equipment condition" column. Replacement parts are available for FOSS by calling Delta Education at 1-800-258-1302 or by using the online replacement-part catalog (www.DeltaEducation.com/foss/buy).

The items in the kit have been selected for their ease of use and durability. Make sure that items are clean and dry before putting them back in the kit. Small items should be inventoried (a good job for students under your supervision) and put into zip bags for storage. Any items that are no longer useful for science should be properly recycled.