

Getting Started with LABsent®

Although research suggests that students learn better with an inquiry-based approach like SEPUP's, many teachers struggle with problems caused by students who need to make up missed lab(s) due to absence. We developed the LABsent® tools so that students who miss lab work can easily make up the work without requiring teachers to give up prep or afterschool time to supervise the lab. The LABsent® packets typically contain a modified version of the lab activity, sometimes with links to short videos of the activity, and may contain data tables and questions for students to complete.

What follows are guidelines followed in the development of LABsent® in order to make it useful to as many teachers as possible.

- LABsent® strictly follows the SEPUP Teacher's Guide lesson components: *Get Started*, *Do the Activity*, and *Build Understanding*. Every attempt was made to provide the absent student the same experience that took place in the classroom.
- Questions in the Teacher's Guide that are designed to be asked to the class are most often in the LABsent® packet and the *absent* student is expected to answer these in writing, even though students present for the activity would have answered them during discussion.
- The SEPUP *Planning and Carrying Out Investigations* (PCI) activities were purposely left as such so that absent students would have the opportunity to truly *design* their own investigation. There is no LABsent® video showing these procedures as this would compromise the PCI process.
- Not all LABsent® work can be completed out of class. PCI activities, and some questions that call for students to obtain data or discuss results with classmates were left as written, so that the interactive nature of this work was left intact. We did not want to reduce or eliminate the inquiry component by having videos or documents available with the "answers." These are often noted in the LABsent® activity in **red** and students are directed to complete that portion when they return to class.
- Not all LABsent® activities include a video. For example, activities that included a card sort have scanned copies of the cards in the packet. This makes them available for the students to cut out and manipulate at home to complete the activity.
- LABsent® packets may never be completed in their entirety as most SEPUP activities take more than one class period to complete. If a student is only absent one day, the teacher may need to assign only certain portions of the

LABsent® packet. Long-term absences may require completion of several packets.

- Often, the SEPUP lesson plan calls for students to complete Analysis Items after the activity is debriefed in class. In LABsent®, when there is a *Build Understanding* question that would give an answer to an Analysis Item, especially an assessment analysis item, that *Build Understanding* question is not included in the packet.

LABsent OVERVIEW

Issues and Science

Biomedical Engineering Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Save Fred!			✓ <i>Investigation</i>
2. Me, an Engineer?			✓ <i>Investigation activity</i> (must be done in class to experience results)
3. Bionic Bodies			✓ <i>Reading activity</i>
4. Artificial Bone Model			✓ <i>Design activity</i>
5. Artificial Heart Valve			✓ <i>Design activity</i>
6. The Work of an Engineer			✓ <i>Reading activity</i>
7. Snack Bar			✓ <i>Design activity</i>
8. Investigating Biomechanics	✓	✓	
9. Get a Grip			✓ <i>Design activity</i>

LABsent OVERVIEW

Issues and Science

Body Systems Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. The Pellagra Story			✓ <i>View and Reflect</i> activity
2. Parts of a Whole	✓		
3. What's Happening Inside?	✓		
4. Digestion: An Absorbing Tale			✓ <i>Reading</i> activity
5. Food Breakdown	✓	✓	
6. Observing Organisms	✓	✓	
7. Can You Tell the Difference?	✓		
8. Finding the Nerve			✓ <i>Reading</i> activity
9. Heartily Fit			✓ <i>Laboratory</i> activity (can do on own)
10. Gas Exchange	✓	✓	
11. Interacting Systems			✓ <i>Reading</i> activity
12. The Circulation Game			✓ <i>Modeling</i> activity (done as a class)
13. Testing Medicines: A Clinical Trial	✓		
14. Evaluating Clinical Trials			✓ <i>Talking it Over</i> activity

LABsent OVERVIEW

Issues and Science

Chemical Reactions Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Producing Circuit Boards	✓	✓	
2. Evidence of a Chemical Change	✓	✓	
3. Physical Changes and Chemical Reactions			✓ <i>Reading activity</i>
4. Chemical Reactions at the Molecular State	✓	✓	
5. Physical or Chemical Change?			✓ <i>Talking it Over activity</i>
6. Comparing the Masses of Reactants and Products	✓	✓	
7. Explaining Conservation of Mass	✓	✓	
8. Chemical Batteries	✓	✓	
9. Thermal Energy and Reactions	✓	✓	
10. Developing a Prototype			✓ <i>Design activity</i>
11. Refining the Design			✓ <i>Design activity</i>
12. Recovering Copper	✓	✓	
13. Another Approach to Recovering Copper	✓	✓	

LABsent OVERVIEW

Issues and Science

Chemistry of Materials Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Exploring Materials			✓ <i>Talking it Over</i> activity
2. Investigating Elements	✓	✓	
3. Physical and Chemical Properties of Materials	✓	✓	
4. Determining Density	✓	✓	
5. Evaluating Properties of Materials			✓ <i>Talking it Over</i> activity
6. Modeling Molecules	✓	✓	
7. Structure and Properties of Materials			✓ <i>Reading</i> activity
8. What's in a State?	✓	✓	
9. Energy and Particle Movement	✓	✓	
10. Modeling State Changes	✓	✓	
11. Making Polymers	✓	✓	
12. Modeling Polymers	✓	✓	
13. The Impact of Plastics on Society			✓ <i>Talking it Over</i> activity

LABsent OVERVIEW

Issues and Science

Earth's Resources Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Observing Earth's Resources	✓	✓	
2. World Resource Consumption			✓ <i>Reading activity</i>
3. Properties of Natural Resources			✓ PCI activity
4. Per Capita Consumption	✓		
5. Finding Hidden Resources	✓	✓	
6. Extracting Resources from the Earth	✓	✓	
7. Geological Processes			✓ <i>Reading activity</i>
8. Groundwater Formation	✓	✓	
9. Modeling Rock Layers	✓	✓	
10. Earth's History	✓	✓ (Visual Aid)	
11. Fossils Through Time	✓	✓ (Visual Aid)	
12. Reading Rock Strata	✓	✓	
13. Impact on Earth's Systems			✓ <i>Reading activity</i>
14. Making a Decision			✓ <i>Talking it Over activity</i>

LABsent OVERVIEW

Issues and Science

Ecology Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. The Miracle Fish?			✓ <i>Talking it Over</i> activity
2. Introduced Species			✓ <i>Project</i> activity
3. Data Transects	✓		
4. Taking a Look Outside	✓	✓	
5. A Suitable Habitat	✓	✓	
6. Ups and Downs	✓		
7. Coughing Up Clues	✓	✓	
8. Eating for Matter and Energy			✓ <i>Reading</i> activity
9. Population Growth	✓	✓	
10. Interactions in Ecosystems			✓ <i>Investigation</i> activity
11. Cycling of Matter	✓	✓	
12. Modeling the Introduction of a New Species	✓		
13. Abiotic Impacts on Ecosystems	✓		
14. Effects of an Introduced Species			✓ <i>Investigation</i> activity
15. Too Many Mussels			✓ <i>Talking it Over</i> activity
16. Presenting the Facts			✓ <i>Project</i> activity

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Issues and Science

Energy Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Home Energy Use			✓ <i>Investigation activity</i>
2. Drive a Nail	✓	✓	
3. Roller Coaster Energy			✓ <i>Reading activity</i>
4. Shake the Shot	✓	✓	
5. Conservation of Energy			✓ <i>Reading activity</i>
6. Follow the Energy	✓		
7. Mixing Hot and Cold Water	✓	✓	
8. Thermal Energy Storage			✓ <i>PCI activity</i>
9. Energy Across the Sciences			✓ <i>Reading activity</i>
10. Energy Transfer Challenge			✓ <i>Design activity</i>
11. Energy in Light	✓	✓	
12. Conduction, Convection, and Radiation			✓ <i>Reading activity</i>
13. Maximizing Solar Energy Transfer			✓ <i>Design activity</i>
14. Hot Bulbs	✓	✓	
15. Improving Home Energy Efficiency			✓ <i>Problem Solving activity</i>

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Issues and Science

Evolution Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. The Full Course	✓	✓	
2. Hiding in the Background	✓	✓	
3. A Meeting of the Minds			✓ <i>Role Play activity</i>
4. Battling Beaks	✓	✓	
5. Mutations: Good or Bad?	✓	✓	
6. Mutations and Evolution			✓ <i>Computer Simulation activity</i>
7. Origins of Species			✓ <i>View and Reflect activity</i>
8. History and Diversity of Life			✓ <i>Reading activity</i>
9. Fossil Evidence	✓	✓	
10. Fossilized Footprints	✓	✓	
11. Family Histories			✓ <i>Investigation activity</i>
12. A Whale of a Tale	✓	✓	
13. Embryology	✓	✓	
14. The Sixth Extinction?	✓		
15. Bacteria and Bugs: Evolution of Resistance			✓ <i>Reading activity</i>
16. Manipulating Genes			✓ <i>Investigation activity</i>
17. Evolution and Us			✓ <i>Project activity</i>

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Issues and Science

Fields and Interactions Unit

Activity	LABsent Packet	LABsent Video(s)	No LABsent Video - reason
1. Save the Astronaut!			✓ <i>Problem Solving activity</i>
2. The Apollo Missions			✓ <i>Reading activity</i>
3. Gravity Transporter			✓ <i>Design activity</i>
4. Gravitational Force			✓ <i>Investigation activity</i>
5. Mapping Magnetic Fields	✓	✓	
6. Magnetic Transporter			✓ <i>Design activity</i>
7. Gravitational and Magnetic Fields			✓ <i>Reading activity</i>
8. Static Electricity	✓	✓	
9. Electrostatic Force	✓	✓	
10. Visualizing an Electric Field			✓ <i>Computer Simulation activity</i>
11. Electric Field Transporter			✓ <i>Modeling activity</i>
12. Electric and Magnetic Fields	✓	✓	
13. Gyrosphere Rescue			✓ <i>Design activity</i>
14. Electric and Electromagnetic Fields			✓ <i>Reading activity</i>
15. Evaluating Transporter Designs			✓ <i>Talking it Over activity</i>

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Issues and Science

Force and Motion Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Improving Car and Driver Safety			✓ <i>Talking It Over</i> activity
2. Measuring and Graphing Speed	✓	✓	
3. Speed and Kinetic Energy		✓	
4. Mass and Kinetic Energy			✓ PCI assessment activity
5. Quantifying Kinetic Energy	✓		
6. Changing Direction	✓	✓	
7. Changing Speed	✓	✓	
8. Force, Mass, and Acceleration			✓ <i>Investigation</i> activity
9. Newton's Laws of Motion			✓ <i>Reading</i> activity
10. Interacting Objects	✓	✓	
11. Newton's Third Law			✓ <i>Modeling</i> activity
12. Collisions and Changes in Motion	✓	✓	
13. Braking Distance	✓	✓	
14. Coming to a Stop			✓ <i>Problem Solving</i> activity
15. Designing a Car and Driver Safety System			✓ <i>Design</i> activity

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Issues and Science

From Cells to Organisms Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Disease Outbreak	✓	✓	
2. An Invisible Organism			✓ <i>View and Reflect activity</i>
3. Evidence of Microscopic Organisms	✓	✓	
4. The History of Cell Theory			✓ <i>Reading activity</i>
5. Cells Alive!	✓	✓	
6. Parts of a Cell			✓ <i>Reading activity</i>
7. Investigating the Cell Membrane	✓	✓	
8. Modeling Cell Structure and Function			✓ <i>Modeling activity</i>
9. Observing Multicellular Organisms	✓	✓	
10. Cells, Tissues, and Organs			✓ <i>Reading activity</i>
11. Energy and Matter in Cells	✓	✓	
12. The Cells of Plants	✓	✓	
13. A Plant's Source of Energy	✓	✓	
14. Fighting Disease			✓ <i>View and Reflect activity</i>
15. Disease Detectives			✓ <i>Investigation activity</i>

LABsent OVERVIEW

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Geological Processes Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Storing Nuclear Waste			✓ <i>Talking it Over</i> activity
2. Investigating Groundwater	✓	✓	
3. Modeling Landslides			✓ <i>View and Reflect</i> activity
4. Natural Hazards Caused by Earthquakes and Volcanoes			✓ <i>Reading</i> activity
5. Modeling Volcanic Eruptions	✓	✓	
6. Mapping Locations of Earthquakes and Volcanoes			✓ <i>Investigation</i> activity
7. Observing Earth's Moving Surface			✓ <i>Investigation</i> activity
8. Beneath Earth's Surface			✓ <i>Reading</i> activity
9. Modeling Earthquakes	✓	✓	
10. Plate Boundaries			✓ <i>Computer Simulation</i> activity
11. Understanding Plate Boundaries			✓ <i>Reading</i> activity
12. The Continent Puzzle	✓		
13. The Theory of Plate Tectonics			✓ <i>View and Reflect</i> activity
14. What Makes the Plates Move?	✓	✓	
15. The Rock Cycle			✓ <i>Investigation (group)</i> activity
16. Rocks as a Resource			✓ <i>Reading</i> activity
17. Enough Resources for All?	✓	✓	
18. Evaluating Site Risk			✓ <i>Talking it Over</i> activity

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Issues and Science

Land, Water, and Human Interactions Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Where Should We Build?			✓ <i>Investigation activity</i>
2. Does It Dissolve?	✓	✓	
3. Water Quality			✓ <i>Investigation activity</i>
4. Living Indicators	✓	✓	
5. Nutrients as Contaminants	✓	✓	
6. Gulf of Mexico Dead Zone			✓ <i>Reading activity</i>
7. Cutting Canyons and Building Deltas	✓	✓	
8. Traveling with the Water Cycle	✓		
9. Human Impacts on Earth's Water			✓ <i>Reading activity</i>
10. Making Topographic Maps	✓	✓	
11. Boomtown's Topography			✓ <i>Investigation activity</i>
12. Modeling Cliff Erosion	✓	✓	
13. Weathering, Erosion, and Deposition			✓ <i>Reading activity</i>
14. Building on the Mississippi			✓ <i>Role Play activity</i>
15. Building in Boomtown			✓ <i>Investigation activity</i>
16. Building Site Plan			✓ <i>Design activity</i>

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Issues and Science

Reproduction Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Joe's Situation			✓ <i>View and Reflect</i> activity
2. Creature Features			✓ <i>Modeling</i> activity
3. Reproduction			✓ <i>Reading</i> activity
4. Gene Combo	✓		
5. Gene Squares			✓ <i>Problem Solving</i> activity
6. Mendel, First Geneticist			✓ <i>Reading</i> activity
7. Do Genes Determine Everything?	✓	✓	
8. Show Me the Genes!			✓ <i>Reading</i> activity
9. Breeding Critters – More Traits	✓		
10. Animal Behavior			✓ <i>Investigation</i> activity
11. Plant-Animal Interactions	✓		
12. How Do Genes Produce Traits?	✓	✓	
13. Fault in the Genes	✓	✓	
14. Advising Joe			✓ <i>Talking it Over</i> activity

LABsent OVERVIEW

Issues and Science

Solar System and Beyond Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Exploring Space			✓ <i>Talking it Over</i> activity
2. The Predictable Moon	✓		
3. Explaining Moon Phases	✓	✓	
4. Moon Phase Simulation			✓ <i>Computer Simulation</i> activity
5. The Moon's Orbit	✓	✓	
6. Changing Sunlight			✓ <i>Investigation</i> activity
7. A Year Viewed from Space			✓ <i>Computer Simulation</i> activity
8. Earth's Tilt	✓	✓	
9. The Earth on the Move			✓ <i>Reading</i> activity
10. Observing Objects from Space	✓		
11. Drawing the Solar System			✓ <i>Modeling</i> activity
12. How Big are the Planets?			✓ <i>Project</i> activity
13. Identifying Planets			✓ <i>Investigation</i> activity
14. Gravitational Force			✓ <i>Investigation</i> activity
15. The Effects of Gravity			✓ <i>Reading</i> activity
16. Modeling Gravity			✓ <i>Computer Simulation</i> activity
17. Choosing a Mission			✓ <i>Talking It Over</i> activity

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Issues and Science

Waves Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. It's a Noisy World	✓		
2. Making Sound Waves	✓	✓	
3. The Nature of Sound			✓ <i>Reading activity</i>
4. Noise-Induced Hearing Loss			✓ <i>Investigation activity</i>
5. Telephone Model	✓	✓	
6. Analog and Digital Technology			✓ <i>Reading activity</i>
7. Another Kind of Wave	✓	✓	
8. Waves Reflection	✓	✓	
9. Refraction of Light	✓	✓	
10. Comparing Colors	✓	✓	
11. Selective Transmission	✓	✓	
12. The Electromagnetic Spectrum			✓ <i>Reading activity</i>
13. Where Does the Light Go?	✓	✓	
14. Blocking Out Ultraviolet	✓	✓	
15. Personal Protection Plan			✓ <i>Investigation activity</i>

LABsent OVERVIEW

Issues and Science

Weather and Climate Unit

Activity	LABsent packet	LABsent Video(s)	No LABsent Video - reason
1. Climate Change			✓ <i>Talking it Over</i> activity
2. Investigating Local Weather			✓ <i>Investigation</i> activity
3. Local history of Severe Weather			✓ <i>Project</i> activity
4. Climate Types and Distribution Patterns			✓ <i>Problem Solving</i> activity
5. Earth's Surface	✓		
6. Heating Earth's Surfaces			✓ PCI activity
7. Ocean Temperatures	✓		
8. Investigating Water	✓	✓	
9. Oceans and Climate			✓ <i>Role Play</i> activity
10. The Causes of Climate			✓ <i>Reading</i> activity
11. Worldwide Wind			✓ <i>Investigation</i> activity
12. Measuring Wind Speed and Direction			✓ <i>Design</i> activity
13. Forecasting Weather			✓ <i>Investigation</i> activity
14. Atmosphere and Climate			✓ <i>Reading</i> activity
15. History of Earth's Atmosphere	✓		
16. Global Warming			✓ <i>Investigation</i> activity
17. People, Weather, and Climate			✓ <i>Talking it Over</i> activity