Leaf Pack Network

Quick Guide

MATERIALS AND METHODS NEEDED TO START MONITORING WITH LEAF PACKS

Tips and Reminders

- Find the Leaf Pack Network Manual on this section of the Leaf Pack Network website!
- Find a safe, accessible stream site with riffles areas that are wadeable.
- Leaf packs need to be left out in a creek or stream for three to four weeks.
- You'll need to have collected dried leaves (or dry green leaves) prior to making the packs.
- Make roughly one leaf pack per student group to sort. Or 3-4 per stream.
- Packs can be reused for sorting and ID.
- Aquatic macroinvertebrates will be returned live after you use them for the lesson and should be returned within 24 hours.
- Aquatic macroinvertebrates require cold water and oxygen. When animals are not being used to teach the lesson, keep them in water (from the stream source) with ice packs and a bubbler.

MATERIALS LIST

Leaf Pack Stream Ecology Kit Contents

Included Items

QTY	DESCRIPTION
6	Plastic mesh bags
6	Bag Tags
6	Large zipper-top bags
60	Petri dishes
30 ft	Nylon twine
1 set	Thermometers
1	Waterproof marker
1	Scale
12	Brushes
1	Sieve, 500 micron mesh
6	Sorting trays, white, plastic
1	MacroLens™
6	Hand lenses
12	Spoons, white, plastic
2	Rulers
1	Tree Identification Guide
1	Leaf Pack Stream Ecology Kit User's Manual
6	Freshwater Macroinvertebrate Sorting Sheets
1 Set	Freshwater Aquatic Macroinvertebrates: Identification Flash Cards
1	Freshwater Macroinvertebrate Dichotomous Key

Additional Items Needed

- Dried tree leaves, 180g (30g per leaf pack)
- Scissors
- Cooler and ice packs

Optional Items

- Rock hammer or sledge hammer
- Hollow cinder blocks or bricks
- Rebar (reinforcement bar), 1 meter section, or strong stakes.
- Dissecting microscope
- Buckets
- Freshwater Aquatic Macroinvertebrates: Life Cycle and Habitat Flash Cards (Code 5946)

The Leaf Pack Stream Ecology Kit provides materials for six leaf packs and six sorting stations. Procedures are written to be used with the manual and items that are included in the kit. Substitutions with equivalent items can be made.

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Step 1: Collecting Leaves (Pg. 17 of Manual)

1. Gather leaves that have already fallen from trees and dry them on a table for a few days. If this is not possible, "green" or live leaves can be used but they will need to be dried.
2. Gather enough to fill each leaf pack, approximately 15 to 30 grams.
3. Choose leaves from the three dominant native species found in your immediate watershed.
4. Choose leaves that are hand-sized or similar.

Step 2: Preparing Packs for the Stream (Pg. 19 of Manual)

Watch the Video of This Step

*Each pack will consist of approximately 5-10 grams of each three leaf types for a total weight of 15-30 grams.

1. Using the scale in the kit, a plastic cup and a plastic tray, weigh 5-10 grams of each leaf type.
2. Add leaves to a mesh bag.
3. Create a bag tag with pack info (leaf types, total weight, etc.).
4. Close with one knot.
5. Repeat for more leaf packs (3-4 per site).

Step 3: Placing Leaf Packs in the Stream (Pg. 22 of Manual)

Watch the Video of This Step

1. Go to wadeable area of stream with a riffle. *Make sure area is deep enough for packs to be totally submerged under water when placed.
2. Place a rebar in stream for tying leaf packs.
3. Tie one end of a piece of nylon string (1-3 feet) to the knot of each leaf pack and tie other end to the rebar. Then anchor pack underwater with a rock, on the upstream side of rock to secure it.
4. Record information on Field Data Sheet (water temperature, location, # packs, etc.).

Step 4: Collecting Leaf Packs from the Stream (Pg. 24 of Manual)

Watch the Video of This Step

1. Find your packs in the stream.
2. Collect stream water in an empty bucket and set aside.
3. With the sieve, place under the pack or downstream, and scoop the pack up above the water surface.
4. With scissors cut the pack loose.
5. Place pack in the bucket with stream water.
6. Repeat for remaining packs.
7. Complete Field Data Sheet.
8. Collect additional stream water in a separate bucket for sorting.

Step 5: Processing the Leaf Packs (Pg. 25 of Manual)

Watch the Video of This Step

1. Untie knot in each leaf pack and remove nylon string.
2. Transfer contents of the leaf pack back into bucket, and repeat steps 1-2 for each pack.
3. Pour contents of bucket (#1) through sieve into another empty bucket (#2) and rinse sieve contents into empty bucket (#2).

Step 6: Sorting and Identification (Pg. 26 of Manual)

Watch the Video of This Step

1. *Use Biotic Index Data Sheet
2. Divide pack contents among the sorting trays that contain a couple inches of water.
3. Place a petri dish on each circle of the macroinvertebrate sorting sheet.
4. Fill each petri dish with water (from the stream or dechlorinated).
5. Use a plastic spoon or brush to sort through the leaf packs, transferring any macroinvertebrates you find to the petri dishes.
6. Identify all macroinvertebrates and record on the Biotic Index Data Sheet.
7. Clean up area and return macroinvertebrates to the stream.

Step 7: Complete Biotic Index and Enter Data (Pg. 28–31 of Manual)

1. Count number of individual macroinvertebrates in the petri dishes for each taxa (e.g. mayflies, planarians, crayfish) and record on Biotic Index Data Sheet.
2. Complete calculation.
3. Enter data into the Monitor My Watershed data portal.

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