

Discovery Science Camp 2010 -- BioTimeBandits

The Main Idea: Nature often “happens” at time scales different than the way humans experience time. We can learn much about organisms by trying to see things happen faster or slower than they really are. We can gain incredible insights by thinking about our environment at vastly different time scales. In fact, our abilities to do this will become increasingly important to be able to anticipate consequences resulting from human impacts on local and global environments.

The project: Students will work in small groups (or alone if they seem to work best this way) to create a video of an organism or ecosystem that shows how they are able to observe something using timelapse technologies they would not normally be able to see.

Overview of the student projects:

- 1) View amazing timelapse nature videos!
- 2) Learn to use some timelapse technology and software
 - a. Point and shoot camera that has built-in time lapse capabilities
 - b. Weather-resistant “gardencam” that only takes timelapse pictures
 - c. Webcam plus iStopMotion software
- 3) Learn about some lab organisms (mealworms, cockroaches, cabbage white butterflies, duckweed, fast plants, bread mold, hibiscus plants, snails, “browning” enzymatic activity, etc.)
- 4) Ask a research question about one of these organisms that timelapse technologies will help answer
- 5) Calculate the most effective time interval and length of photo shoot, and estimate playback speed.
- 6) Set up the time lapse overnight
- 7) Put time lapse video into iMovie and edit!

Other activities (and possible projects – plan “B” if their lab projects do not work out):

- 1) How long have humans been around in relation to other organisms? (first day outing)
- 2) When are bees most attracted to the bee bowls? (field trips)
- 3) When do predators investigate decoy grassland bird eggs? (field trips)
- 4) What do ants do all day? (field trips)
- 5) What kinds of prairie insects are active during the day vs. the night? (field trips)
- 6) How can you model organisms changing through time? (claymation)

Tentative Schedule:

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| Monday | 9:30-12:00 | Intros, view first video, geologic time activity | MSUM, CC trees |
| | 2:30-5:30 | Play with technologies, find cool timelapse examples on youtube, create clay eggs | MSUM |
| Tuesday | 9:00-12:00 | Introduce organisms, internet research, create research question and plan investigations, do necessary calculations, Queen of the Trees video | MSUM |
| | 2:30-5:30 | Set up bee bowls, eggs/nests, ant hill timelapses; sweep for insects; set up overnight experiments | Science center, MSUM |
| Wednesday | 9:00-12:00 | Sort and classify day insects, Life video, try out claymation | MSUM |
| | 2:30-5:30 | Begin projects | MSUM |
| | 9:00-11:30 | Collect eggs/nests, bee bowls, ant hill cameras; sweep for insects; set up black light/sheet | Science center |
| Thursday | 9:00-12:00 | Sort and classify night insects, muscle/actin activity, Planet Earth video, work on projects | MSUM |
| | 2:30-5:30 | Work on projects, post on youtube! | MSUM |
| Friday | 9:00-10:00 | Practice presentations | MSUM |