

WACKY WATER CRITTERS

iPad ‘Key to Life in the Pond’:

Each student iPad contains a copy of an interactive branching key (found in iBooks) with the same identifying characteristics as the paper version of the key. The iPad key adds pictures and more information about each type of macroinvertebrate once properly identified.

Once students have opened the key on their iPads, explain that they can zoom in or out on the key by dragging two fingers on the pad together or apart. They can move to different sections of the key by dragging a fingertip up, down, or side to side. Give them a minute to practice this.

Explain that in using this key, the basic process of identification is the same as for any branching key. Rules are:

- 1) Start at the top
- 2) Follow the branch that most fits your organism to the next characteristic.
- 3) When you’ve followed as many options as you can, look at the pictures of the organisms to see if one matches your animal.
- 4) Tapping the blue dot below the name of any organism will lead to a photo of that organism.

To go back, tap the small, grey box to the bottom right of the photo. Swiping to the right or left of the photo will manually go to the slide prior or next in sequence.

Ken-A-Vision multimedia AV camera:

The Ken-A-Vision allows a three dimensional object to be projected onto a television screen for easy viewing by all. Instead of rotating between stereoscopes to view the diversity of organisms in the Wisconsin River, have each partnership select the organism they’d like to report on and bring it to you so that everyone can view it. Do this during the Adaptation Sheet portion of the lesson. Instead of using paper sheets, draw three columns on the white board and label them “name,” “how it breathes,” and “how it protects itself.” As each critter is viewed, instruct one partner to write their critter’s name on the board and list two adaptations (breathing and protection) as the other partner talks. The white board can be referred to during the Biotic Index portion of the lesson.

iPad Water Quality app

Instead of using the *Wonderful, Wacky Water Critter book* to look up and read about the different macroinvertebrates, students can use the Water Quality app on their iPads to find information on their favorite critter. After tapping the app to open, instruct the students to look at the top left side blue menu bar titled “**Reports.**” Tap the + symbol to start a new report. A new box will appear, in the middle of which is an **open lock** symbol. If this symbol is tapped, the screen is locked and should be tapped again to unlock.

To give a new report title, tap the grey “**Report Title**” text and a keypad will appear in which the students can type their names. Exit by dragging a finger to scroll up the screen or tap the **keypad icon** in the bottom right hand corner to close. Students should drag a finger to up the screen to bypass the “Measurements” portion, which focus on abiotic factors of water quality, until they reach the section titled “Benthic Macroinvertebrates.”

On the left side appear the names and graphics of different macroinvertebrates. Students may touch the name of any macroinvertebrate and a photo and additional information will appear on the **shape, size, identification, feeding habits, life cycle** and **PTI** (Pollution Tolerance Index rating) of the organism. Students should find out how their organism breathes and protects itself.

Introduce the concept of the Biotic Index, how it works, and its meaning the same as in the traditional lesson. Instead of using a Citizen Monitoring Biotic Index poster, the students will use the Water Quality app on their iPads to calculate the Biotic Index value. Looking at their ice cube tray (which should contain like organisms together), for each TYPE of identified organism, they should tap the **plus sign** next to that organism. The number of the individuals is not important; what is important is to record that a type was found. If they make a mistake, they can tap the **minus sign** to remove that organism.

As they type in to add each type of organism, they'll notice that the two algebraic formulas at the top are calculating. Tap the **"Four Taxa Index"** or the **"Three Taxa Index"** to get an explanation of what the PTI is, a scale of water quality based on the PTI score, and at the very bottom, an explanation of how the PTI is determined for a body of water. When finished, they should tap **"Done"** in the top right corner of the pop up box.

When all macroinvertebrate types have been entered, each group should report their scores to the rest of the group. Ask for a brave volunteer to do the math to average all PTI scores to come up with a final number. Then all should click on the 4- or 3- Taxa Index to see what the score means in terms of water quality rating (excellent, good, fair, poor).