

Science through the Side-door: Inquiry-based Lessons from the Watersports Adventure Weekend

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Welcome

This curriculum comes to you from an experienced team of outdoor educators. We hope all educators will find it to be a useful supplement in water-based scientific learning. Even those with limited science and recreation skills will find this curriculum to be a valuable tool.

The WAW

The Watersports Adventure Weekend is a successful Ohio 4-H specialty camp held in the late spring at 4-H Camp Piedmont in Eastern Ohio. The WAW is geared towards middle-school youth and focuses on high-quality instruction in a fun environment. This guide highlights the four disciplines from the 2013 camp—canoeing, fishing, kayaking, and aquatic life. Future disciplines are anticipated.

Side-door Learning

Part of the successful appeal of the WAW has been the level of learning that participants receive without feeling like they are in a scholastic or formal setting. This is intentional. The WAW instructors have worked hard to utilize an inquiry-based, side-door approach to learning. This approach is best characterized as: 1. asking timely, open-ended questions and 2. allowing the setting and experience to dictate the learning. The youth have gravitated to this approach while maintaining strong learning scores in their evaluations.



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Utilizing this Guide

This curriculum is broken down into the four discipline areas listed previously. For each, there are four questions listed that cover a variety of science standards. You will quickly notice that an all-inclusive approach was not taken. For example, we did not discuss the laws of motion and their relationship to the various paddle strokes in kayaking. Again, our philosophy is that if you take every obvious opportunity for scientific learning, the students quickly reject the event as being too formal. Therefore, many of the questions you see fit naturally into a more conversational education approach.

NGS Standards

Some of the leading minds in science have come together to generate the Next Generation Science Standards. We have chosen to utilize them in anticipation of their widespread adoption into the mainstream educational community. They are listed to give formal educators a framework to guide conversations and instruction. To find out more about the NGS Standards and to understand the code listings referenced, visit: www.nextgenscience.org

Canoeing

- PS1: Who goes in the stern (back) of the canoe vs. who sits in the bow (front) of the boat?
- PS2: When we did our team races and you had to go as fast as you could, what made your team work well? What slowed you down or caused problems?
- PS2: Would you rather canoe on calm or choppy water? Why?
- PS3: Earlier we learned that the combo air/water temperature should be at least 120+ degrees F to canoe without a wetsuit. When you fell in, most of you thought it was 'freezing.' So now if I told you that today's combo temp was 142, what would that tell you about your personal hypothermic threshold?

Fishing

- PS3: This has been an unseasonably warm weekend. How might that have hindered our fishing success?
- ESS2: This is the top muskie fishing lake in Ohio. What is it about this lake you think they might like so much?
- ESS3: Would you eat the fish from this lake? Why or why not?
- ETS1: A couple of you lost fish that you'd originally hooked. Why do you think that happened?

Kayaking

- PS1: When we start out across the lake, should we go with the wind first or against the wind first? Why would it matter?
- PS4: When we are out on the water, we will use non-verbal cues for our safety signals? Why would we use non-verbals?
- LS1: The strongest paddling position is when you are sitting fully upright. Why is kayaking more difficult when you slouch back in your seat?
- ETS1: As we practiced our sweep strokes, which kayaks seemed to turn faster/easier than the others? Why might that be the case?

Aquatic Life

- LS1: What was the most interesting discovery for you during our dissection time?
- LS2: When we were collecting specimens in the lake, where did we find most of them? Why?
- LS4: What were the similarities and differences between the crayfish and sunfish that we examined today?
- ESS2: How did the near vs. deep shore water samples compare? What might this teach us about where fish live vs. where they eat?

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