

Training Guide

for *The Power
of the Wind*

90-Minute
Introduction



Acknowledgements



Training Guide for *The Power of the Wind*

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Welcome



Purpose:

- To identify the purpose of the training.
- To identify key components of the 90-minute training.

Time:

90 minutes

Materials:

- Flipchart with Agenda

Trainer Notes:

STEP 1: Welcome

Welcome to *The Power of the Wind* 90-minute introduction. Some of you may have more experience than others in facilitating groups of youth in their learning. The overarching goal of this workshop is to enhance your ability to successfully work with youth using *The Power of the Wind* Youth and Facilitator Guides. This training is dependent on *The Power of the Wind* Youth and Facilitator Guides and is designed to deepen your knowledge and skills on how to use those guides most effectively.

STEP 2: Review Agenda

Go over the 90-minute training agenda with the participants. Put on flipchart so participants can see.

I. Opening and Context Setting – 5 minutes

II. Designing a Wind Powered Boat – 45 minutes: *Discussion about how this is an example out of the curriculum and have copies for them to refer to after the activity. Process similar to the way it is written in the guide but they would have less time to build.*

III. Curriculum Scavenger Hunt – 35 minutes: *Chance for them to become familiar with the whole guide. Might be a chance to point out specific activities and how they build on each other and the importance of the engineering design cycle.*

IV. Closure – 5 minutes

Mention that participants will have an opportunity to experience one activity and become familiar with how the curriculum is set up.





Designing a Wind Powered Boat

Purpose:

- To become familiar with an activity in *The Power of the Wind Curriculum*.
- To identify different ways to approach leading an activity.

Time: 35 minutes

Materials:

Flip chart with the following:

Design and build a “sailboat” that will travel in a straight line a minimum of 75 cm on a smooth surface.¹ Your “constraints” are to use a Styrofoam tray for the body and to attach a mast with a sail to the tray.

Small styrofoam tray, flexible straws, cardboard or index cards, tape, straight pins, scissors, tape measure, box fan, flip chart with activity directions on (see bolded statement below). Optional: pencils, stop watch with second hand, string, paper cups, paper clips, pennies, miscellaneous hardware and office supplies.

¹ Sebestick, J. (2008). *The Power of the Wind Youth Guide*. University of Illinois. P 6.

Trainer Notes:

Refer to flip chart with instructions for this activity.

STEP 1: Activity and Discussion

We are going to work on designing a wind powered boat, one of the activities from the curriculum. The challenge is a design problem. In this activity, you will build your own sailboat and test it to see how far and straight it goes when you use a fan as the source of wind. Feel free to test, adjust your designs, and test again.

Please work with a partner to complete this activity. You will have about 15 minutes to complete this activity. Materials are located _____ (**tell participants where materials are located**).

As participants are doing the activity, move around the room and check in with groups to identify progress and challenges they are having. The activity can take about 15 minutes after participants begin; however, if the majority of participants are done early or need extra time, the length of time spent on the activity can be adjusted. Notify participants when they have 5 minutes left. This cue will help them wrap up the activity.

Now let’s discuss your designs and models. Let’s do a “show and tell” and highlight your designs.





Have participants walk to each group as they give a short overview of their boat. When the overview is completed, ask the group selected questions from below. Do this for each group after they highlight their design.

Questions to ask groups as they discuss their design:

- How far did the sailboat travel? How does the wind move a sailboat?
- What was something you learned by building this sailboat?
- Where else in your life do you see wind used to move things?
- How might you use what you just learned in other designs?

STEP 2: Review as Facilitators

Now let's break this apart as facilitators that would be leading this activity ourselves.

Please refer to pages 6 – 7 in *The Power of the Wind* curriculum.

Give them some time just to familiarize themselves with the page and read the different sections.

Notice the piece of the activity you just did "How Can We Design a Wind Powered Boat?" Let's review the setup of each lesson. Can someone point out the key pieces or headers for this lesson?

Have participants share the specific sections below.

- ***The "Design and Build" section gives you the challenge or task that needs to be completed.***
- ***The "Try It" section gives you ideas and specific directions of HOW to complete the task.***
- ***The side bar on page six lists the materials you need.***





- *The “In your Engineering Notebook” section lists a series of questions that you can think about, talk about, and answer as you are doing the activity, as well as after you have completed the activity.*
- *The side bars on page seven provide content information about wind that might be helpful in completing the activity.*

There are a lot of great ideas in the youth and facilitator guides. This training is designed to deepen your learning of these great resources and how you might use these and other ideas while you implement.

- What similarities and differences did you notice in how you completed the activity versus what the guide says?
- What did you just learn about how this activity is done by doing it?
- How will this help you implement?
- Based on the activity you did, what challenges do you anticipate with leading this activity?

Please turn to the Facilitator’s Guide on pages six and seven. Take a couple of minutes to read through the facilitators tips for this activity.

- Can you identify how I, as the facilitator, used these tips in facilitating the lesson?
- What additional helpful hints do you see in the Facilitator’s Guide for this activity that you will want to use as a facilitator?
- What SET Abilities were you intentionally working on as you completed this activity?

STEP 3: Transition

In the next section, we will be learning more about how the curriculum is organized.



Curriculum Scavenger Hunt



Purpose:

To identify the setup and key components in *The Power of the Wind Curriculum Guide*.

Time:

35 minutes

Materials:

Trainer Resource:
Curriculum Scavenger Hunt

Handout:

- Curriculum Scavenger Hunt
- Copy of the Youth Guide for each participant

Trainer Notes:

*Explain that this section will familiarize participants with *The Power of the Wind Youth Guide*.*

STEP 1: Context and Instructions

In order to become familiar with the curriculum, I am going to have you do a scavenger hunt with a series of questions to find out how *The Power of the Wind Youth Guide* is organized. I could stand up here and tell you, but, that is not really how people learn. Unless you have your own experiences with the information and have to think about your own learning, it is less likely to happen. This is not just true of you as adults, but also of the youth you work with.

STEP 2: Activity and Discussion

You will work in small groups of three to four (or with a partner) to answer the questions on the Curriculum Scavenger Hunt Handout. This is a time for you and your team members to become familiar with the curriculum so take your time. This is not a race. Think about the answers, and if there are questions it raises for you, bring them back to the larger group for discussion. This will not point out everything about the curriculum but give you an overview to become more familiar with it.





Pass out the Curriculum Scavenger Hunt handout. Have participants work with one or more people to complete the worksheet. This may take around 15 minutes. Watch silently to see when people are finished. Allow time for participants to find the items on the Curriculum Scavenger Hunt handout. The important thing is that they are really learning how the curriculum is organized.

Have participants share answers they found to each question. Add on to what people found where there is something that is going to be specifically relevant to their understanding. See Trainer Resource – Curriculum Scavenger Hunt for background. If time permits, ask the following questions.

Let's discuss what you found.

In addition to what the worksheet asked you to find:

- What did you notice, learn, were surprised about, etc?
- In what ways does this organization make it easier or more difficult for you as a facilitator?
- In what ways does the curriculum help you prepare to lead an activity?

The scavenger hunt activity is designed to familiarize you with the elements of the curriculum and can help you implement *The Power of the Wind*.





TRAINER RESOURCE Curriculum Scavenger Hunt

1. Notice the background color in the header space that lists the “big question” for each activity. How are the colors correlated with type of activity?

This guide is written with an engineering approach to the lessons. What does that mean? It means it is composed of a series of challenges, investigations, and explorations. The activities are setup from an engineering perspective: Exploration – orange, Challenge – blue, Investigation – green. Take a look at page 3 of the Facilitator Guide for more information on each of these pieces.

2. Look over a couple of lessons and specifically look at the “Talk About It” section. What is the purpose of this section?

After the initial “experience,” the next step in the experiential learning model is to share, process, generalize, and apply. This section is the next in the sequence. Participants record data which is a form of sharing. The questions help them process, generalize, and apply. This will be covered further in the experiential learning piece of the training.

3. What information is presented in the blue sidebars? What do the timelines show? What can you learn from the photo captions and other sidebars?

Once the participants have answered, have them review pages 19 and 21 as examples of these three pieces and explain that they are all ways that infuse content into the lessons.

4. The guide is structurally set up in the following way that uses wind energy as the content focus:

- How can we think like an engineer?
- How do we study the wind?
- How do we use the wind?
- How do geography and community influence wind power projects?
- How does wind inspire creativity and design?

Where do you find these and how do they help you as a facilitator and as the learner?

These questions are located at the bottom of each of the pages in the footer section. These questions become the purpose for doing the activities listed. It can help youth give context to the lesson and provide a sense of direction as they are working through it.





TRAINER RESOURCE Curriculum Scavenger Hunt

5. Most activities have a section titled, “In Your Engineering Notebook.” What is the purpose of this section?

A place for data collection, to record thoughts, to write down investigations just like engineers do. The purpose of this is to help young people go through the investigations and model how scientists and engineers do their work.

6. What page has an activity about Wind Farms?

Page 30 – 31. Case studies are good examples to share because it helps young people see a relevance and applicability in the “real world.” This activity might help them ask questions about their community and wind energy.

7. What section immediately follows the “What Innovative Design Can you Create” section?

The Appendix section is where additional resources for the activities can be found. It is where handouts can be copied from. It was purposefully put there so not to take away from the learning sections within each individual lesson.

8. On what page is there an engineering design process diagram?

The engineering design process is the foundation for which this curriculum is built. The model can be found on page eight. Think about how you might continually guide youth back to this place as a reference as they work through the book.

9. How many scientific terms are defined in the curriculum?

There are 49 scientific terms defined in the curriculum and can be found in the Glossary. The glossary in the appendix defines the terms that appear in bold type throughout the text. What else can you find in the appendix? In the other appendices you will also find templates for some of the activities and pages for an Engineering Notebook.





HANDOUT Curriculum Scavenger Hunt

1. Notice the background color in the header space that lists the “big question” for each activity. How are the colors correlated with the type of activity?
2. Look over a couple of lessons and specifically look at the “Talk About It” section. What is the purpose of this section?
3. What information is presented in the blue sidebars? What do the timelines show? What can you learn from the photo captions and other sidebars?
4. The guide is structurally setup in the following way that uses wind energy as the content focus:
 - a. How can we think like an engineer?
 - b. How do we study the wind?
 - c. How do we use the wind?
 - d. How do geography and community influence wind power projects?
 - e. How does wind inspire creativity and design?



Where do you find these, and how do they help you as a facilitator and the learner?



HANDOUT Curriculum Scavenger Hunt

5. Most activities have a section titled, "In your Engineering Notebook."
What is the purpose of this section?

6. What page has an activity about Wind Farms?



7. What section immediately follows the "What Innovative Design Can you Create" section?

8. On what page is there an engineering design process diagram?

9. How many scientific terms are defined in the curriculum?



Closure



Purpose:

- To bring a sense of closure to the training.

Time:

5 minutes

Trainer Notes:

STEP 1: Closing

During the last 90 minutes you were able to experience one of the activities and become more familiar with how the curriculum is organized.

As a closure for this workshop, please describe in one phrase or sentence how you plan to use this information.





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my **Heart** to greater loyalty,

my **Hands** to larger
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and my **Health** to
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for my club, my community, my country, and my world.

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