

# Wings & Water Wetlands Education Program Fall PRE-Tour Classroom Activities

*The Nature Conservancy.* 



GREAT SALT LAKE  
SHORELANDS  
PRESERVE

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## HOW TO USE THESE PRE-TOUR ACTIVITY PAGES

You should complete these pre-tour activities with your students approximately 1-2 weeks BEFORE you take your students on their Fall *Wings and Water* preserve tour.

Learning that has been build into these pre-tour activities and materials includes:

1. Wetlands are an important part of Utah.
2. Wetlands are linked to all parts of the water cycle.
3. Wetlands conditions are affected by our weather and climate.
4. Plants and animals in the Great Salt Lake wetlands have fascinating adaptations that allow them to thrive.
5. The Great Salt Lake Shorelands Preserve is a wetlands sanctuary where people can see and learn about healthy wetlands and their residents.

For each of these topics, we provide the following:

1. **Meeting the Standard**—explains which state core curriculum science standards correlate to each topic.
2. **Checkpoints for Teaching**—describes the concepts that should be incorporated into your lesson plan and that you should ensure students understand.
3. **Student Discovery Guide Activities**—in-class activities based on the Student Discovery Guide. Provided to you by The Nature Conservancy, the Discovery Guides serve as workbooks and field guides with specific pages that correlate to the five pre-tour topics listed above.
4. **Background Information**—topic-specific information designed to help teachers prepare their lesson plans.
5. **Options for Further Activity**—other concepts and ideas for activities.
6. **Other Resources**—references for more information.
7. **Related Vocabulary**—a list of topical vocabulary that should be addressed in your lesson plan.

**Please Remember:** These in-class materials and activities are designed to enhance your students' wetlands education and *Wings & Water* Tour experience. They have been constructed to help you meet the State Core Curriculum Standards for the study of wetlands and should work hand-in-hand with curriculum that you already have in place. As you plan your science curriculum for the year, please incorporate these topics and activities into your classroom studies with your Preserve field trip in mind.



FALL

## PRE-Tour Topic #1: Wetlands

THEME: *Wetlands are an important part of Utah.*

### Checkpoints for Teaching

Below are the concepts your students should understand about wetlands before they take their FALL preserve tour.

#### Preliminary Preserve Tour Information

- Use the upcoming Preserve tour to frame your introduction to wetlands and the *Wings and Water* study unit. Briefly describe the adventure that awaits students and explain that their upcoming science investigations will be preparing them for that experience.
- Introduce the students to the *Discovery Guide*.

#### Physical Characteristics of Wetlands

- Your students should help to construct and be able to recite a descriptive definition for *wetlands*.

### Student Discovery Guide Activities

Use the Student Discovery Guide to review and assess learning from the checkpoints listed above. This activity correlates to pages of the Student Discovery Guide and Field Guide.

#### FRONT PAGE and INSIDE COVER

Introduce your students to the *Student Discovery Guide* as the resource they will be using before, during and after their tour to the Preserve.

- Distribute a *Discovery Guide* to each student and browse through it with the students. Make note of how the guide is designed to be two resources in one—a student workbook and a field guide to wetlands plants & animals.
- Review the map of Great Salt Lake on the inside front cover. Make note of the wetlands found all along the eastern and southern parts of the lake, and of their destination at the Great Salt Lake Shorelands Preserve.

**Meeting the Standard:** This topic correlates to the following Utah state core curriculum standard for science:

**STANDARD V.** Students will understand the physical characteristics of Utah's wetlands, forests and deserts and identify common organisms for each environment.

*Objective 1:* Describe the physical characteristics of Utah's wetlands, forests and deserts.

- Instruct the students to write their names in the space provided on the front cover of the *Discovery Guide*. Other information spaces beneath the name may be left blank for now.
- Collect the *Discovery Guides* and store them for later use.

## Support Materials

A full-page version of the map of Great Salt Lake and its wetlands and a full-page version of the wetlands illustration provided on Student Discovery Guide centerfold pages 18-19 are available for creating overhead transparencies or student worksheets. Download these materials on the Conservancy's web site: [www.nature.org/utah](http://www.nature.org/utah).

## Related Vocabulary

Below is a list of important words and phrases associated with the entire *Wings & Water* study unit. Some are included only for purposes of pronunciation (such as the bird names), while others are more specific to 4<sup>th</sup> grade core topics. Words most relevant to *this* thematic section are shown in ALL CAPS. Your students should be familiar with them before their visit to the Preserve.

|                             |                        |                                  |
|-----------------------------|------------------------|----------------------------------|
| ___ adaptation ( <i>n</i> ) | ___ gas                | ___ <b>PRESERVE</b> ( <i>n</i> ) |
| ___ algae                   | ___ <b>GROUNDWATER</b> | ___ producer                     |
| ___ aquatic                 | ___ <b>HABITAT</b>     | ___ salinity                     |
| ___ avocet                  | ___ <b>HYDRIC SOIL</b> | ___ <b>SEDIMENTS</b>             |
| ___ camouflage              | ___ ibis               | ___ shelter                      |
| ___ climate                 | ___ <b>IGNORANCE</b>   | ___ shorebird                    |
| ___ community               | ___ invertebrate       | ___ soil                         |
| ___ condensation            | ___ liquid             | ___ solid                        |
| ___ <b>CONSERVATION</b>     | ___ marsh              | ___ space                        |
| ___ curlew                  | ___ migration          | ___ trait                        |
| ___ data                    | ___ molt               | ___ transpiration                |
| ___ dirt                    | ___ naturalist         | ___ uplands                      |
| ___ <b>ECOLOGY</b>          | ___ phalarope          | ___ <b>VEGETATION</b>            |
| ___ <b>ECOSYSTEM</b>        | ___ photosynthesis     | ___ water cycle                  |
| ___ elevation               | ___ plant              | ___ watershed                    |
| ___ <b>ENVIRONMENT</b>      | ___ playa              | ___ weather                      |
| ___ evaporation             | ___ plover             | ___ weed                         |
| ___ food chain              | ___ pond               | ___ <b>WETLAND</b>               |
|                             | ___ precipitation      |                                  |

## Teacher Background Information

The background information below is designed to help you prepare your lesson plans on this topic. What we have provided is a starting point but it is not intended to dictate the extent of your lesson plans. Feel free to supplement this information to meet your educational goals.

### Defining Wetlands

A descriptive definition of *wetlands* should include important physical characteristics, such as the presence of water, unique soils and indicator plants. One example of a definition that does this is:

*Wetlands are ecosystems where water is found at least part of the year, with hydric soils and specially adapted plants.*

To better grasp this definition, it may be useful to expand it into its three constituent parts:

1. *The soil is covered by water.* This causes the oxygen in the soil to be squeezed out.
2. *The soil is hydric.* This means the soil is so full of water that it doesn't contain the oxygen needed by most plants.

An opportunity exists here to introduce the *hydra-/hydri-/hydro* word prefix so common in our language. Derived from a form of the Greek, *hydro*, meaning "water," we have such words as *hydroplane*, *hydroelectric*, *hydraulic* and *dehydrated*.

3. *The plant life is adapted.* Wetlands plants have special adaptations to live in water. They are able to grow with very little oxygen, such as in hydric soils.

## **Other Resources**

The following World Wide Web resources provide information and materials pertaining to wetland plants and animals, ecology and education from sources throughout the nation. Sites specific to other regions have been included because of their applicability to Utah wetlands.

Wetlands Plants (Colorado) at <http://waterknowledge.colostate.edu/plants.htm>

Websites and reference books about wetlands, plants and animals from the University School Nashville at <http://internal.usn.org/wetlands/reference.html>

Ecology references from Stratford Landing Elementary School (W. Virginia) at <http://www.fcps.k12.va.us/StratfordLandingES/Ecology/home.htm>

Wetlands Ecology (Wisconsin) at [http://planning.lic.wisc.edu/Wetland%20Ecology/WLE\\_WetlandSpecies.htm](http://planning.lic.wisc.edu/Wetland%20Ecology/WLE_WetlandSpecies.htm)

Wetlands Flora of the West (USGS) at <http://www.npwrc.usgs.gov/resource/plants/florawe/species.htm>

Wetlands Ecology, function and value at [http://www.wetland.org/educ\\_wetlandinfo.htm](http://www.wetland.org/educ_wetlandinfo.htm)

Utah Wetlands & Riparian Center (USU and U of U) at <http://www.utah.edu/uees/wrc/>

Utah Wetlands Education Program (UDWR) at <http://www.wildlife.utah.gov/wetlandsed/>

Utah Wetlands Interpretation Network (UWIN) at <http://www.utahwetlands.org/>

Wetlands Plants & Plant Communities (MN and WI, USGS) at <http://www.npwrc.usgs.gov/resource/1998/mnplant/marsh.htm>

Wonders of Our Wetlands (publication download from *Deseret News*) at <http://www.desnews.com/nie/tg>



### Checkpoints for Teaching

Below are the concepts your students should understand about the water cycle and watersheds before they take their FALL preserve tour.

#### The Water Cycle

Your students should understand ...

- That water can be found in any of three *states*, which we describe as either a *solid*, *liquid* or invisible *gas*.
- A definition for the *water cycle*.
- The role of *evaporation*, *condensation* and *precipitation* in the *water cycle*.
- That energy from *heat* causes water to change from one state to another, and that these changes are what allow water to move from one place to another, such as in streams, underground or through the air.

**Meeting the Standard:** This topic correlates to the following Utah state core curriculum standard for science:

**STANDARD I.** Students will understand that water changes state as it moves through the water cycle.

*Objective 1:* Describe the relationship between heat energy, evaporation and condensation of water on Earth.

*Objective 2:* Describe the water cycle.

### Student Discovery Guide Activities

If time permits, you might choose to use this activity derived from the Student Discovery Guide to review and assess learning from the Checkpoints outlined above. Otherwise, postpone this activity until after the Preserve tour (See POST-Tour Topic #2).

#### PAGE 5 - THE WATER CYCLE: A Never Ending Tour

- Direct the students to page 5 to review some of what they have learned about the water cycle. Have them each color, label and diagram according to the directions.
- Here are some notes regarding the correct answers, beginning with the leftmost arrow and moving clockwise around the graphic:
  1. *Evaporation* is shown on the left emerging as vapor waves from the lake.
  2. *Condensation* is shown in the form of a pair of clouds near the sun.
  3. *Precipitation* is shown as rainfall from the largest cloud.
  4. *Runoff* is depicted as snowmelt running down the hill at the top right.
  5. *Infiltration* is indicated where runoff is percolating into the ground.
  6. *A Spring* is shown where streams of water emit from the ground.
  7. *Groundwater* is indicated by the arrow pointing to an underground aquifer.
  8. *Respiration* is represented by the deer standing near the small lake.

9. *Transpiration* is represented by the trees at the lower left.
10. A *River* is indicated near the center winding past some conifer trees.

- Collect the *Discovery Guides* and store them for later use.

## Support Materials

A full-page version of the *Water Cycle worksheet* (page 5 of *Discovery Guide*) is available for download on the Conservancy's web site: [www.nature.org/utah](http://www.nature.org/utah).

## Teacher Background Information

The background information below is designed to help you prepare your lesson plans on this topic. What we have provided is a starting point but it is not intended to dictate the extent of your lesson plans. Feel free to supplement this information to meet your educational goals.

### The Water Cycle

A useful definition:

*The endless movement of water through land, living things and the atmosphere.*

Meteorologists have estimated that the average water molecule remains aloft—moving through the atmosphere as either gas or vapor—for six days. In some cases, this means that some molecules could circle the globe before returning to Earth!

On the other hand, our *lake effect* storms sometimes transform water from Great Salt Lake through stages of gas, cloud vapor and precipitation over just a few miles and in mere minutes or hours, falling as rain or snow on the foothills or at higher elevations.

Have your students blink their eyes or lick their lips. It is likely that their tears and saliva contain water that has traveled many times through the Earth's atmosphere and through countless plants and animals since the Earth began.

## Related Vocabulary

Below is a list of important words and phrases associated with the entire *Wings & Water* study unit. Some are included only for purposes of pronunciation (such as the bird names), while others are more specific to 4<sup>th</sup> grade core topics. Words most relevant to *this* thematic section are shown in ALL CAPS. Your students should be familiar with them before their visit to the Preserve.

|                         |                          |                           |
|-------------------------|--------------------------|---------------------------|
| ___ adaptation          | ___ <b>GAS</b>           | ___ preserve ( <i>n</i> ) |
| ___ algae               | ___ groundwater          | ___ producer              |
| ___ aquatic             | ___ habitat              | ___ salinity              |
| ___ avocet              | ___ hydric soil          | ___ sediments             |
| ___ camouflage          | ___ ibis                 | ___ shelter               |
| ___ climate             | ___ ignorance            | ___ shorebird             |
| ___ community           | ___ invertebrate         | ___ soil                  |
| ___ <b>CONDENSATION</b> | ___ <b>LIQUID</b>        | ___ <b>SOLID</b>          |
| ___ conservation        | ___ marsh                | ___ space                 |
| ___ curlew              | ___ migration            | ___ trait                 |
| ___ data                | ___ molt                 | ___ <b>TRANSPIRATION</b>  |
| ___ dirt                | ___ naturalist           | ___ uplands               |
| ___ ecology             | ___ phalarope            | ___ vegetation            |
| ___ ecosystem           | ___ photosynthesis       | ___ <b>WATER CYCLE</b>    |
| ___ elevation           | ___ plant                | ___ watershed             |
| ___ <b>ENVIRONMENT</b>  | ___ playa                | ___ weather               |
| ___ <b>EVAPORATION</b>  | ___ plover               | ___ weed                  |
| ___ food chain          | ___ pond                 | ___ wetland               |
|                         | ___ <b>PRECIPITATION</b> |                           |



FALL

## PRE-Tour Topic #3: Weather and Climate

**THEME:** *Wetland conditions are affected by our weather and climate.*

### Checkpoints for Teaching

Below are the concepts your students should understand about weather and climate before they take their FALL preserve tour.

#### Patterns of Weather, Trends in Climate

Your students should understand:

- The difference between *weather* and *climate*.
- That we can see a pattern to the weather in our region, such as in the amount of precipitation during different times of the year.
- That we can observe climate trends over years or decades, such as revealed by changes in annual precipitation.

**Meeting the Standard:** This topic correlates to the following Utah state core curriculum standard for science:

**STANDARD II.** Students will understand the elements of weather can be observed, measured and recorded to make predictions and determine simple weather patterns.

*Objective 2:* Interpret recorded weather data for simple patterns.

### Student Discovery Guide Activities

No *Student Discovery Guide* pages are assigned for this section.

### Support Materials

*Although there are no Student Discovery Guide pages that address this exact topic, you may wish to use a full-page version of the Great Salt Lake graph featured on page 6 of the Student Discovery Guide for additional activities. This graph is available for download on the Conservancy's web site: [www.nature.org/wingsandwater](http://www.nature.org/wingsandwater) under SUPPORT MATERIALS.*

## **Teacher Background Information**

The background information below is designed to help you prepare your lesson plans on this topic. What we have provided is a starting point but it is not intended to dictate the extent of your lesson plans. Feel free to supplement this information to meet your educational goals.

### **Patterns of Weather, Trends in Climate**

A useful distinction between weather and climate:

*Weather* is what is happening in the atmosphere at any particular time and place. We describe weather in terms of conditions measured as temperature, humidity, wind speed and direction, cloud cover and precipitation.

*Climate* is the average weather in a location, based on patterns revealed over a long period of time. For example, we say that a place that doesn't get much rain over many years has a "dry climate," and a place where it stays cold for most of the year would be said to have a "cold climate."

Weather changes hourly or daily. Climate changes over decades or centuries. We can sometimes experience dry weather in a wet climate or wet conditions in a dry climate (For example, a warm day in the arctic or showers in Death Valley).

### **Options for Further Activity**

Incorporate teaching from other aspects of 4th grade science that complements these weather and climate studies with...

- The use of a physical map to show and explain how the uplift of California's Sierra Nevada Mountains has resulted in westward moving Pacific Ocean moisture being captured as precipitation before it can reach Nevada and Utah. The dry climate of our two states is largely the result of this "cloud-wringing" effect.
- Additional graphing activities.
- Extended weather studies and recordkeeping.
- The introduction of additional vocabulary words and meanings from the list.

## Related Vocabulary

Below is a list of important words and phrases associated with the entire *Wings & Water* study unit. Some are included only for purposes of pronunciation (such as the bird names), while others are more specific to 4<sup>th</sup> grade core topics. Words most relevant to *this* thematic section are shown in ALL CAPS. Your students should be familiar with them before their visit to the Preserve.

|                    |                          |                           |
|--------------------|--------------------------|---------------------------|
| ___ adaptation     | ___ gas                  | ___ preserve ( <i>n</i> ) |
| ___ algae          | ___ groundwater          | ___ producer              |
| ___ aquatic        | ___ habitat              | ___ salinity              |
| ___ avocet         | ___ hydric soil          | ___ sediments             |
| ___ camouflage     | ___ ibis                 | ___ shelter               |
| ___ <b>CLIMATE</b> | ___ ignorance            | ___ shorebird             |
| ___ community      | ___ invertebrate         | ___ soil                  |
| ___ condensation   | ___ liquid               | ___ solid                 |
| ___ conservation   | ___ marsh                | ___ space                 |
| ___ curlew         | ___ migration            | ___ trait                 |
| ___ data           | ___ molt                 | ___ transpiration         |
| ___ dirt           | ___ naturalist           | ___ uplands               |
| ___ ecology        | ___ phalarope            | ___ vegetation            |
| ___ ecosystem      | ___ photosynthesis       | ___ water cycle           |
| ___ elevation      | ___ plant                | ___ watershed             |
| ___ environment    | ___ playa                | ___ <b>WEATHER</b>        |
| ___ evaporation    | ___ plover               | ___ weed                  |
| ___ food chain     | ___ pond                 | ___ wetland               |
|                    | ___ <b>PRECIPITATION</b> |                           |





FALL

## PRE-Tour Topic #4: Adaptations

**THEME:** *Plants and animals in the Great Salt Lake wetlands have fascinating adaptations that allow them to thrive.*

### Checkpoints for Teaching

Below are the concepts your students should understand about adaptations before they take their FALL preserve tour.

#### *Four Needs of All Life*

- Your students should be able to explain that the four things that all living things must acquire in order to survive are *food, water, shelter* and *space*.

#### *Adaptation versus Invention*

Your students should be able to:

- Define a biological adaptation.
- Distinguish between a biological adaptation and an invention.
- Explain why different species have different adaptations.

#### **Kinds of Adaptations**

- Your students should be able to distinguish between *physical* and *behavioral* adaptations.

#### **Plant and Animal Adaptations**

Your students should be able to:

- Provide an example of both a physical and behavioral adaptation in a native plant species.
- Provide an example of both a physical and behavioral adaptation in a native animal species.

**Meeting the Standard:** This topic correlates to the following Utah state core curriculum standard for science:

**STANDARD V.** Students will understand the physical characteristics of Utah's wetlands, forests and deserts and identify common organisms for each environment.

*Objective 2:* Describe the common plants and animals found in Utah Environments and how these animals have adapted to the environment in which they live.

## **Student Discovery Guide Activities**

If time permits, you might choose to use this activity derived from the Student Discovery Guide to review and assess learning from the Checkpoints outlined above. Otherwise, postpone this activity until after the Preserve tour (See POST-Tour Topic #1).

### **PAGE 7 – ADAPTATIONS: Nature’s Problem-Solvers**

- Direct the students to page 7 for a review of adaptations. Have them each complete the page according to the directions given.
- Collect the *Discovery Guides* and store them for later use.

## **Support Materials**

*Detailed wetlands plant and animal fact sheets are available for your use. Download these materials on the Conservancy’s web site: [www.nature.org/wingsandwater](http://www.nature.org/wingsandwater) under SUPPORT MATERIALS.*

## Related Vocabulary

Below is a list of important words and phrases associated with the entire *Wings & Water* study unit. Some are included only for purposes of pronunciation (such as the bird names), while others are more specific to 4<sup>th</sup> grade core topics. Words most relevant to *this* thematic section are shown in ALL CAPS. Your students should be familiar with them before their visit to the Preserve.

|                       |                    |                           |
|-----------------------|--------------------|---------------------------|
| ___ <b>ADAPTATION</b> | ___ gas            | ___ preserve ( <i>n</i> ) |
| ___ algae             | ___ groundwater    | ___ producer              |
| ___ aquatic           | ___ habitat        | ___ salinity              |
| ___ avocet            | ___ hydric soil    | ___ sediments             |
| ___ <b>CAMOUFLAGE</b> | ___ ibis           | ___ <b>SHELTER</b>        |
| ___ climate           | ___ ignorance      | ___ shorebird             |
| ___ community         | ___ invertebrate   | ___ soil                  |
| ___ condensation      | ___ liquid         | ___ solid                 |
| ___ conservation      | ___ marsh          | ___ <b>SPACE</b>          |
| ___ curlew            | ___ migration      | ___ <b>TRAIT</b>          |
| ___ data              | ___ molt           | ___ transpiration         |
| ___ dirt              | ___ naturalist     | ___ uplands               |
| ___ ecology           | ___ phalarope      | ___ vegetation            |
| ___ ecosystem         | ___ photosynthesis | ___ water cycle           |
| ___ elevation         | ___ plant          | ___ watershed             |
| ___ environment       | ___ playa          | ___ weather               |
| ___ evaporation       | ___ plover         | ___ weed                  |
| ___ food chain        | ___ pond           | ___ wetland               |
|                       | ___ precipitation  |                           |

## Teacher Background Information

The background information below is designed to help you prepare your lesson plans on this topic. What we have provided is a starting point but it is not intended to dictate the extent of your lesson plans. Feel free to supplement this information to meet your educational goals.

### Four Needs of All Life

Most life on Earth can be assured of sunlight and an atmosphere, but there are four additional needs essential to survival that plants and animals must acquire in order to stay alive: Food, Water, Shelter and Space.

- *FOOD* is the source of nutrients for all life. For plants and algae, these nutrients come from soil and/or water. For animals, these nutrients come from other plants and animals.
- *WATER* in some form is needed for the bodily processes of all life forms.
- *SHELTER* is the means by which living things protect themselves from harm, from living and nonliving causes. Plants acquire shelter either from their own structural parts or from where they take root and grow. Animals find or build shelter for themselves. For some, the form or location of shelter changes through the year, and some animals, such as turtles and snails, carry some of their own shelter with them.
- *SPACE* is often synonymous with habitat, but may also include locations between two necessary habitats, as for migratory animals. All living things and their offspring need room to avoid direct competition with others, to be able to reproduce and to find food, water and shelter for themselves.

### Adaptations versus Invention

A “trait” is a way that a plant or animal looks or acts. Biologists reserve the noun, “adaptation,” to describe survival traits that are passed on from parents to offspring. On the other hand, a tool or technique that helps us survive is an “invention.”

For example, large feet on a snowshoe hare or the large bill of a pelican are adaptations, because healthy offspring of these species will be born with these traits. Snowshoes or a lunch bag are inventions because, although they may similarly aid in survival, our offspring are not born with these as traits.

A useful definition of adaptation, then, might be:

*Inherited traits that help a plant or animal survive.*

Different species possess different adaptations because their survival needs are different. Where a species lives and how it obtains its energy (what it “eats”) causes it to be unique among all other species.

Put another way, adaptations are what help living things find the kinds of food, water, shelter and space they require.

## **Kinds of Adaptations**

For simplicity, adaptations can be classified as either *physical* (parts of its body/how it looks) or *behavioral* (what it does/how it acts).

For example, our fingers and teeth or a bird's beak and feathers are all physical adaptations. Our ability to use tools and language or a bird's construction of a nest and singing are all behavioral adaptations.

## **Plant and Animal Adaptations**

- Other examples of plant adaptations:  
PHYSICAL: leaves, flowers, roots, stem, bark, branches, spines, seeds, taste, color  
BEHAVIORAL: life cycle, growth, pollination, habitat, and seed distribution
- Other examples of animal adaptations:  
PHYSICAL: legs, feet, ears, eyes, nose, mouth, teeth, body covering, claws, size  
BEHAVIORAL: migration, shelter, habitat, metamorphosis, movement, feeding

Most classification systems depend on the various adaptive traits of plants and animals to help us distinguish one species from another.



**FALL**

## **PRE-Tour Topic #5: Final Preparations**

**THEME:** *The Great Salt Lake Shorelands Preserve is a wetlands sanctuary where people can see and learn about healthy wetlands and their residents.*

### **Checkpoints for Teaching**

Below are the concepts your students should understand about the Great Salt Lake Shorelands Preserve and their upcoming field-trip before they take their FALL preserve tour.

#### **The Preserve Visitor Center**

Your students should be able to:

- Explain the purpose of the Great Salt Lake Shorelands Preserve.
- Describe the location of the Great Salt Lake Shorelands Preserve and its Visitor Center.

#### **Tour Preparation**

Each student should...

- List what s/he personally needs to bring for their Preserve field trip.
- Describe acceptable and unacceptable behaviors during the Preserve tour.
- Explain something s/he knows about the Great Salt Lake.
- Describe two things s/he expects to see or learn about during the Preserve tour.
- Write two questions about the Great Salt Lake wetlands that s/he hopes to answer during the Preserve tour.

### **Student Discovery Guide Activities**

Use the Student Discovery Guide to review and assess learning from the checkpoints listed above. This activity correlates to pages 2, 3 and 16 of the Discovery Guide and all pages of the Field Guide.

#### **PAGE 2 – OUR VISIT to the Great Salt Lake Shorelands Preserve**

- Return the *Guides* to the students. Emphasize how this booklet is their personal tool for getting the most from their upcoming Preserve tour.
- Direct the students to page 2 and the section, “My Field Trip Checklist.” Have them affirm their understanding by checking each item on the list.

- Direct the students to the “Wills & Won’ts” section on page 2. Have them verify their agreement with these guidelines by checking each item on the list. An extra space is provided for an optional addition to the list.

### **PAGE 3 – THINKING AHEAD**

- Preview page 3 with the students. Instruct them to silently and individually complete the sections, “I Think I Know” and “My LFT’s.”

### **PAGE 16 – MAP of the Great Salt Lake Shorelands Preserve Visitor Center**

- Review the map of Great Salt Lake on the inside cover, and the detail map of the Preserve Visitor Center on page 16.
- If you haven’t already done so, assign a Tour Group (Pod) letter and name to each student (see the Teacher Welcome Letter for more information). Have them write this information on the front cover of the Discovery Guide in the space provided.

### **FIELD GUIDE - OVERVIEW**

- Preview the Field Guide section at the opposite end of their *Discovery Guide*. Conduct an overview and explain the value of Field Guide pages 1 through 16.
- Collect the *Discovery Guides* and store them for redistribution at the Preserve

### **Support Materials**

*Detailed wetland plant and animal fact sheets as well as a full-page version of the Great Salt Lake map for use in preparing overhead transparencies or for handouts are available for download on the Conservancy’s web site: [www.nature.org/wingsandwater](http://www.nature.org/wingsandwater) under SUPPORT MATERIALS.*



## Related Vocabulary

Below is a list of important words and phrases associated with the entire *Wings & Water* study unit. Some are included only for purposes of pronunciation (such as the bird names), while others are more specific to 4<sup>th</sup> grade core topics. Words most relevant to *this* thematic section are shown in ALL CAPS. Your students should be familiar with them before their visit to the Preserve.

|                    |                         |                           |
|--------------------|-------------------------|---------------------------|
| ___ adaptation     | ___ gas                 | ___ preserve ( <i>n</i> ) |
| ___ <b>ALGAE</b>   | ___ groundwater         | ___ producer              |
| ___ <b>AQUATIC</b> | ___ habitat             | ___ <b>SALINITY</b>       |
| ___ <b>AVOCET</b>  | ___ hydric soil         | ___ sediments             |
| ___ camouflage     | ___ <b>IBIS</b>         | ___ shelter               |
| ___ climate        | ___ ignorance           | ___ <b>SHOREBIRD</b>      |
| ___ community      | ___ <b>INVERTEBRATE</b> | ___ soil                  |
| ___ condensation   | ___ liquid              | ___ solid                 |
| ___ conservation   | ___ marsh               | ___ space                 |
| ___ <b>CURLEW</b>  | ___ <b>MIGRATION</b>    | ___ trait                 |
| ___ data           | ___ <b>MOLT</b>         | ___ transpiration         |
| ___ dirt           | ___ <b>NATURALIST</b>   | ___ uplands               |
| ___ ecology        | ___ <b>PHALAROPE</b>    | ___ vegetation            |
| ___ ecosystem      | ___ photosynthesis      | ___ water cycle           |
| ___ elevation      | ___ plant               | ___ watershed             |
| ___ environment    | ___ playa               | ___ weather               |
| ___ evaporation    | ___ <b>PLOVER</b>       | ___ weed                  |
| ___ food chain     | ___ pond                | ___ wetland               |
|                    | ___ precipitation       |                           |

## Teacher Background Information

The background information below is designed to help you prepare your lesson plans on this topic. What we have provided is a starting point but it is not intended to dictate the extent of your lesson plans. Feel free to supplement this information to meet your educational goals.

### The Preserve Visitor Center

For background information about The Nature Conservancy and its Great Salt Lake Shorelands Preserve and Visitor Center go to [www.nature.org/wherewework/northamerica/states/utah/preserves/art5834.html](http://www.nature.org/wherewework/northamerica/states/utah/preserves/art5834.html) and the inside front cover of the Student Discovery Guide.

### Tour Preparations

Information about tour pod and team names and assignments can be found at [www.nature.org/wingsandwater](http://www.nature.org/wingsandwater) under Tour Policies and Requirements or in the welcome letter that you receive with your copies of the Student Discovery Guides. You can also contact The Nature Conservancy offices at (801) 531-0999 with any questions.

### Related Vocabulary

In the preceding list, Avocet, Curlew, Ibis, Phalarope and Plover are included as vocabulary words mainly for pronunciation. These are all bird species that will be explored and discussed by the students during the Preserve tour.

*Avocet* is pronounced AAV-uh-set. The first syllable rhymes with “have.”

*Curlew* has the hard “K” sound: KUR-loo.

*Ibis* is pronounced with a hard “I”: EYE-bis.

*Phalarope* is pronounced FAAL-uh-rope. The first syllable rhymes with “pal.”

*Plover* rhymes with *clover* (Or may also rhyme with “hover” or “lover”).

Illustrations of and information about these birds may be found in the Field Guide portion of the Student Discovery Guide or at the Wings and Water website [www.nature.org/wingsandwater](http://www.nature.org/wingsandwater) under SUPPORT MATERIALS- Bird Fact Sheets.

## Complete Pre-Tour Vocabulary Review

Words in ALL-CAPS below summarize the vocabulary that should be introduced by the end of this pre-tour unit and before your fall tour. (Words shown in lower case will be introduced as part of the Preserve tour or during post-tour classroom activities.)

|                         |                          |                                  |
|-------------------------|--------------------------|----------------------------------|
| ___ <b>ADAPTATION</b>   | ___ <b>GAS</b>           | ___ <b>PRESERVE</b> ( <i>n</i> ) |
| ___ <b>ALGAE</b>        | ___ <b>GROUNDWATER</b>   | ___ producer                     |
| ___ <b>AQUATIC</b>      | ___ <b>HABITAT</b>       | ___ <b>SALINITY</b>              |
| ___ <b>AVOCET</b>       | ___ <b>HYDRIC SOIL</b>   | ___ <b>SEDIMENTS</b>             |
| ___ <b>CAMOUFLAGE</b>   | ___ <b>IBIS</b>          | ___ <b>SHELTER</b>               |
| ___ <b>CLIMATE</b>      | ___ <b>IGNORANCE</b>     | ___ <b>SHOREBIRD</b>             |
| ___ community           | ___ <b>INVERTEBRATE</b>  | ___ soil                         |
| ___ <b>CONDENSATION</b> | ___ <b>LIQUID</b>        | ___ <b>SOLID</b>                 |
| ___ <b>CONSERVATION</b> | ___ marsh                | ___ <b>SPACE</b>                 |
| ___ <b>CURLEW</b>       | ___ <b>MIGRATION</b>     | ___ <b>TRAIT</b>                 |
| ___ data                | ___ <b>MOLT</b>          | ___ <b>TRANSPIRATION</b>         |
| ___ dirt                | ___ <b>NATURALIST</b>    | ___ uplands                      |
| ___ <b>ECOLOGY</b>      | ___ <b>PHALAROPE</b>     | ___ <b>VEGETATION</b>            |
| ___ <b>ECOSYSTEM</b>    | ___ photosynthesis       | ___ <b>WATER CYCLE</b>           |
| ___ elevation           | ___ plant                | ___ watershed                    |
| ___ <b>ENVIRONMENT</b>  | ___ playa                | ___ <b>WEATHER</b>               |
| ___ <b>EVAPORATION</b>  | ___ <b>PLOVER</b>        | ___ weed                         |
| ___ food chain          | ___ pond                 | ___ <b>WETLAND</b>               |
|                         | ___ <b>PRECIPITATION</b> |                                  |