

MAC Lesson Plan

Module: Wheat

Objectives: After Completion of this module, students will be able to:

1. Identify the basic steps in which wheat is planted, grown, harvested, and processed.
2. Identify food products that are made from wheat.
3. Grind wheat kernels into flour.
4. Mix and observe whole wheat flour made into pancakes.

Instruction Time: 50-60 minutes

Resources:

Materials Provided:

- Giant Book of Wheat
- Oversized Easel
- Bucket of Whole Wheat
- Hand Wheat Grinders (2 students/grinder)
- Paper Bowls (1 bowl/grinder)
- 2 Mixing Bowls
- Mixing Utensil
- Bag of Krustez Pancake Mix
- Electric Pancake Griddle
- Pancake Turner
- Paper Plates
- Plastic Forks and Knives

Materials needed:

- Water
- Syrup or Jam
- Butter
- Hand Sanitizer
- *Note: this activity is not gluten free. Plan accordingly for students that are gluten intolerant.*

Teaching Strategies (Content Delivery):

Objective 1: Identify the basic steps in which wheat is planted, grown, harvested, and processed. (*Time: 15 minutes for objectives 1 and 2*)

- Place the *Giant Book of Wheat* on the easel. Open the *Giant Book of Wheat* to the first page that says "Planting".
 - Read the question "**What machinery is used?**"
Take student responses. Responses could include: tractors pull plows to turn the soil, then they would disc the soil to break up the dirt clods. Then the farmer would put the wheat seed into grain planters that put the seed into the soil. The tractors and equipment can be large or small.
 - Read the question "**When is wheat planted?**"

Take student responses. Responses could include: There are two types of wheat; winter and spring wheat. Winter wheat is planted and starts growing in the fall. It then lays dormant under the snow until spring. In the spring, when it starts to warm up, the wheat begins to grow. Spring wheat is planted in the spring.

- The second page is “Watering”.
 - Read the question **“Where does the water come from?”**
Take student responses. Responses may vary depending on region as follows: About 50% of wheat is dry-land farmed and the other 50% is irrigated. Dry-land farming is where the wheat is planted and then the only water it receives is from rain. Irrigated wheat is watered in many different methods.
 - Read the question **“What equipment is used?”**
Take student responses. Responses may include: flood irrigation is done with siphon tubes. Pivots put on water through sprinklers as it turns in a circle around the field. Some wheat fields are watered with hand or wheel line sprinklers that must be moved by hand.

- Turn to the third page “Growing”.
 - Read the question **“What do wheat plants need to grow?”**
Take student responses. Responses may include: water, sunlight, and nutrients. As the wheat kernel sprouts it starts to develop roots and leaves. Plants take in water and nutrients through their roots. Nutrients include things from the soil such as potassium, phosphorus, and nitrogen. These are major elements that wheat needs to grow. Farmers will add potassium, phosphorus, and nitrogen to their fields in the form of fertilizer. Just like humans need food, water, and vitamins to grow, so do plants. Plants also take in sunlight and carbon dioxide through their leaves. Water, CO₂, and sunlight are used in the process of photosynthesis. The process of photosynthesis produces sugars and oxygen. The plant uses the sugars to grow and gives off the oxygen that we breathe.
 - Read the question **“How long does it take?”**
Take student responses. Responses could include: Winter wheat will be planted and start growing in the fall and then go dormant through the winter. It will start growing again in the spring. Spring wheat will be planted in the spring. Most all wheat will be harvested from the middle of July to the middle/end of August. Roughly that is about 4 to 5 months for spring wheat.

- The fourth page is “Harvesting”.
 - Read the question **“How do farmers get the wheat off of the plant?”**
Take student responses. Responses could include: Farmers drive combines through the field. The header on the combine cuts the wheat and puts it into the large storage area in the back. When the combine gets full the farmer then takes transfers the wheat to a grain truck or semi. The chaff or the left over straw is then kicked out the bottom of the combine back onto the field.
 - Read the question **“Where does the wheat go after it leaves the field?”**
Take student responses. Responses could include: Big semi-trucks or ten-wheelers haul the grain to storage bins or silos, where it is stored until it is needed at a processing plant. The grain is then reloaded onto trucks and hauled to processing plants to be ground into flour.

Objective 2: Identify food products that are made from wheat.

- Turn to the fifth and sixth pages **“Time To Eat!!!”**
 - Ask the question “What do all of these things have in common?” All of these things have wheat in them.
- Turn to the last page with the picture of the baby calf.
 - The stem of the wheat plant is called straw. Straw can be baled just like hay and then be can be used for dry bedding for animals such as this baby calf.

Objective 3: Grind wheat kernels into flour. *(Time: 7-10 minutes)*

- Before starting the activity, discuss the importance of having clean hands when preparing food to keep from spreading germs and getting sick. Squirt hand sanitizer on each students hands before starting the activity.
- Divide the students into groups of 2.
- Give each group a wheat grinder and help them attach the grinder to a sturdy table or desk.
- Open the bucket of wheat and scoop out about 1/3 cup of wheat kernels.
- Pour a third cup of wheat into each of the groups’ wheat grinder.
- Have the each group place the paper bowl under the wheat grinder to catch the flour.
- Each student should take a turn turning the handle to grind the wheat. *(Note: The tighter the screw is turned in on the handle, the finer the flour will be ground. If needed the group can pour their bowl back into the grinder and tighten the handle and grind it again to make the flour finer.)*
- Only 2 cups of flour will be needed for one batch of pancakes (One batch will make approximately 26-30, 4-inch pancakes). Make sure to use the flour that you feel is most sanitary. If students have put their hands into the flour it could cause spreading of germs. Teacher discretion is advised.
- *Note: plug in and turn on griddles to 325-350 degrees about 5-10 minutes before you are ready to cook. This will make ensure the griddles are hot when the mix is ready.*
- Put the unused flour off to the side.

Objective 4: Mix and observe whole wheat flour made into pancakes. *(Time: 15-20 minutes)*

- Have a student measure out 2 cups of Krustez Pancake mix into a bowl.
- Have a student measure out 2 cups of the ground wheat flour into the same bowl.
- Have a student mix the contents together.
- Add 3 cups of water to the mix.
- Stir until lumps are gone. *(Note: may have to add more water until desired consistency.)*
- Using a measuring cup, pour desired amount onto the electric griddle. Make as many pancakes as desired. Using the pancake turner, flip the pancakes over when they are ready. *(Note: if more pancakes are needed, mix another batch as explained above.)*
- Turn off and unplug the electric griddles.
- Have students eat the pancake with syrup or jam.
- Have students help clean up.