

LESSON 1: WHAT IS RICE?

TOPICS IN THIS LESSON:

- What is Rice?
- Arkansas Rice History
- Rice Production (Cultivation & Milling)

HAND-OUTS:

- Color by Numbers Rice Counties
- Quiz Questions
- Combine Coloring Sheet
- Recipe Card



LESSON 1: WHAT IS RICE?

Rice is the seed of a semi-aquatic grass (*Oryza sativa*) that is cultivated extensively in warm climates in many countries, including the United States, for its edible grain. It is a staple food throughout the world.

RICE HISTORY

- Rice was originally cultivated in the area between India and China as far back as 2000 BC.
- Rice first arrived in North America in the late 1680s, most likely from Madagascar.
- The low-lying marshlands of the Carolinas and Georgia were ideal for rice production. By 1700, rice was a major crop for the colonists. Carolina Gold rice, now a small heirloom crop, soon became Europe's most sought-after rice.
- Over the 300 years since the U.S. rice industry began, rice production gradually moved westward, taking root in today's mid-south and gulf coast rice-producing areas.

RICE IN ARKANSAS

In the United States today, rice production is concentrated in six states: Arkansas, California, Louisiana, Mississippi, Missouri and Texas.

The Mississippi delta, which includes areas of Arkansas, Louisiana, Mississippi and Missouri, is the largest rice-producing region, with **Arkansas accounting for over 50% of the total U.S. rice acreage.**

RICE PLANTED ACRES

Color by numbers sheet is provided at the end of this lesson packet.

FUN FACT!

Rice & The Environment

Rice growing is eco-friendly and has a positive impact on the environment.

Rice fields create a wetland habitat for many species of birds, mammals and reptiles. Without rice farming, wetland environments created by flooded rice fields would be vastly reduced.



RICE PRODUCTION

Rice goes from the field to the table through a two-step process: cultivation and milling.

CULTIVATION

FLOODING

Rice requires controlled flooding and draining of the land. Flooding early in the rice plant's development provides moisture, reduces weeds and controls pests. Draining occurs at the proper point in the plant's maturation to ensure that the grain dries in time for harvesting. In Arkansas, flooding is done through irrigation for better control from planting through harvest.

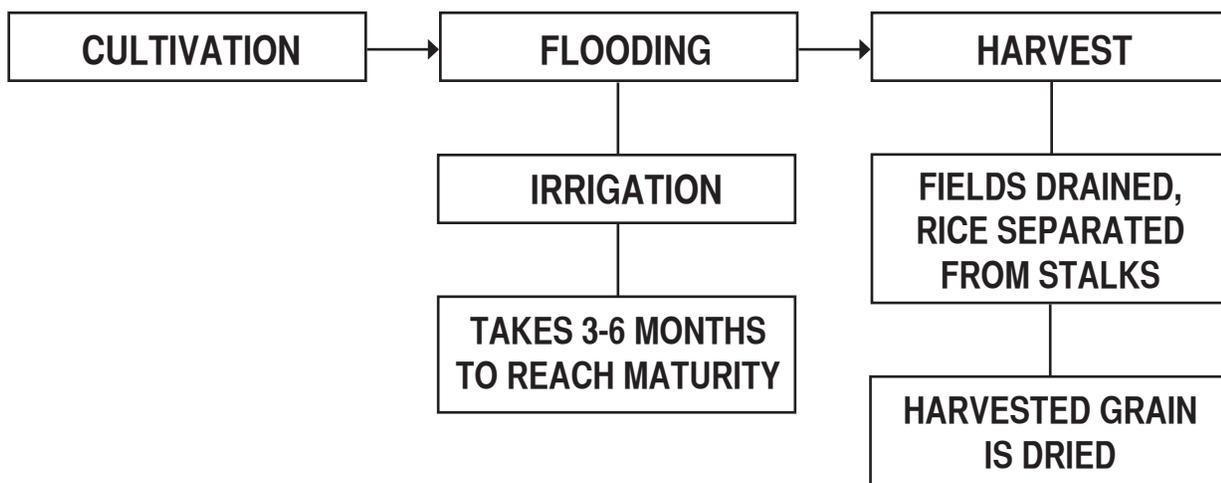
IRRIGATION

Growing rice through irrigation begins by flooding the land to a depth of two to three inches. Rice grains are scattered over the water or young rice plants are individually planted into the muddy water. **It takes three to six months for the rice to reach maturity.** Harvest time is signaled when the moisture content of the grain reaches 18 to 23%.

HARVEST

When the rice is ready for harvesting the fields are drained and the rice grains are separated from the stalks. The harvested grain is dried. Traditionally this was done in the sun, but modern farms use forced air blowers to dry the rice to approximately 12 to 14% moisture content depending on the type of rice. **Dried rice is called "paddy," "rough" or "cargo" rice.**

ACTIVITY: DRAW BLANK FLOW CHART ON WHITE BOARD AND HAVE CLASS FILL IT IN!



MILLING

Milling transforms the indigestible paddy rice into food consumable by humans.

Rice can be milled to varying degrees.

1. The outside layer (the hull or husk) is inedible and is removed. All rice that is used for human food has the hull removed by machines called “shellers.”
2. The remaining grain is called “whole grain rice,” the most common type being “brown rice,” although black rice and red rice are also whole grain rices. It contains the endosperm, germ and bran. The color of the bran determines the actual color of the whole grain rice, such as brown, black or red. Any rice with bran and germ intact is 100 percent whole grain rice.
3. To turn whole grain brown rice into white rice, the grains are passed through machines that rub the grains together to remove the bran and germ.
4. Brown and white rice are both sorted to remove any broken rice kernels.
5. In the United States, most white rice is enriched by coating the surface with a thin layer of nutrients including thiamin, niacin, iron and folic acid. To preserve the nutrients in enriched rice, it is recommended that it should not be rinsed before or after cooking.

ACTIVITY: DRAW BLANK CHART ON WHITE BOARD AND HAVE CLASS FILL IT IN. HAVE CLASS DISCUSS THEIR FAVORITE VARIETIES OF BROWN & WHITE RICE.

TYPE OF RICE BY MILLING	DEGREE OF MILLING	DESCRIPTION
Paddy Rice	None	The whole rice grain after harvest before it is milled. It is indigestible by humans (paddy rice may be used for animal feed).
Whole Grain Rice <i>Brown Rice</i>	Hull (husk) removed with bran and germ intact	100% whole grain rice takes on the natural color of the bran; has a chewy texture and nutty flavor; contains vitamins, minerals, fiber, antioxidants and phytonutrients.
White Rice	Hull, bran and germ removed	A nutritious, complex carbohydrate and the predominant form of rice consumed around the world. It is white to off-white in color, has mild flavor and aroma.

LESSON 1: WHAT IS RICE? REVIEW QUIZ

1. Rice is eco-friendly.
TRUE FALSE
2. Rice has been cultivated since _____.
a) The Civil War b) 20 Million BC c) 2000 BC
3. Which area of the U.S. grows the most rice?
4. What are the two parts of the rice production process?
5. What is the most widely known and available type of whole grain rice?
6. What percentage of acreage does Arkansas account for in total rice production?
a) Less Than 15% b) Over 50% c) Over 80%
7. Which state has the most acreage devoted to rice?
a) Arkansas b) South Carolina c) California d) Texas
8. Name the form of rice not edible by humans.
9. What type of flooding is used in Arkansas during the cultivation process?
10. Name four of the nutrients used to enrich rice.

LESSON 1: WHAT IS RICE? REVIEW QUIZ ANSWERS

1. Rice is eco-friendly.
TRUE FALSE
2. Rice has been cultivated since _____.
a) The Civil War b) 20 Million BC **c) 2000 BC**
3. Which area of the U.S. grows the most rice?
Mid-south
4. What are the two parts of the rice production process?
Cultivating and milling
5. What is the most widely known and available type of whole grain rice?
Brown Rice
6. What percentage of acreage does Arkansas account for in total rice production?
a) Less Than 15% **b) Over 50%** c) Over 80%
7. Which state has the most acreage devoted to rice?
a) Arkansas b) South Carolina c) California d) Texas
8. Name the form of rice not edible by humans.
Paddy Rice
9. What type of flooding is used in Arkansas during the cultivation process?
Irrigation
10. Name four of the nutrients used to enrich rice.
Thiamin, Niacin, Iron and Folic Acid

COLOR BY NUMBERS: RICE IN ARKANSAS

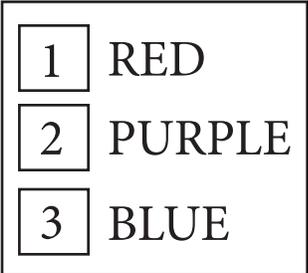
SOURCE: Economic Contributions of the US Rice Industry to the US Economy



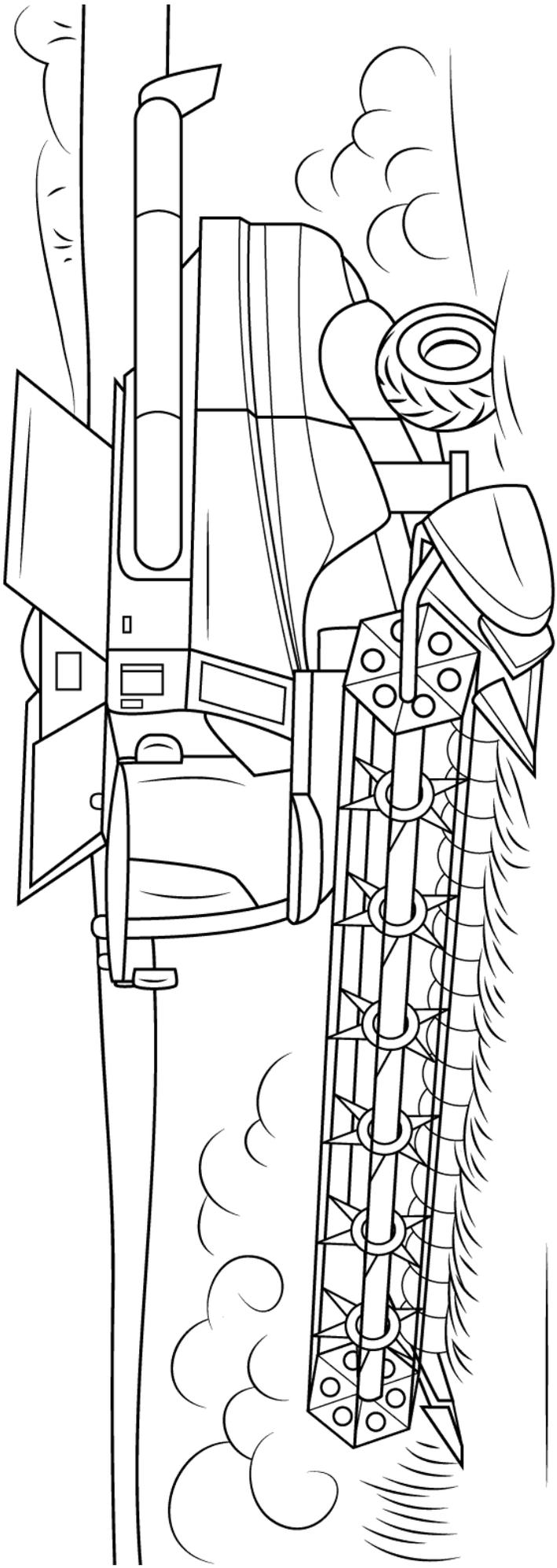
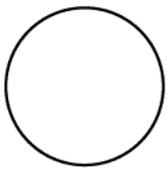
RICE PLANTED ACRES



400 ————— 150,000



COLOR THE COMBINE



Rice Recipes Students will LOVE



Serving Size and Nutrients Per Serving

SERVING SIZE:

K-12: ½ cup

ONE SERVING PROVIDES:

K-12: 1 G

NUTRIENTS PER SERVING:

Calories 140, Protein 4.5 g, Carbohydrate 28 g,
Total Fat 1.5 g, Saturated Fat .5 g, Cholesterol 0,
Vitamin A 29 RE, Vitamin C 0, Iron .5 mg,
Calcium 64.5 mg, Sodium 23 mg,
Dietary Fiber 2 g

*Recipe developed for USA Rice Federation
by Chef Cyndie Story, PhD, RD, CC*

Breakfast Brown Rice

INGREDIENTS

1% Low fat milk

Brown rice, parboiled, uncooked

Brown sugar, lightly packed

Cinnamon, ground

	50 SERVINGS		100 SERVINGS	
	WEIGHT	MEASURE	WEIGHT	MEASURE
1% Low fat milk	-	2 qt 1 pint	-	1 gal 1 qt
Brown rice, parboiled, uncooked	1 lb 9 oz	½ gal	3 lb 2 oz	1 gal
Brown sugar, lightly packed	5 oz	1 cup	10 oz	2 cups
Cinnamon, ground	-	1 tbsp	-	2 tbsp

DIRECTIONS

1. Lightly coat full size 2-inch steam table pan with food release spray. For 50 servings, use 1 pan. For 100 servings use 2 pans.
2. Pour 2 quarts plus 1 pint of milk in each pan.
3. Add 1 lb 9 oz of uncooked brown rice to each pan.
4. Add 1 cup lightly packed brown sugar and 1 tablespoon of cinnamon to each pan. Whisk to combine.
5. Cook, uncovered, in steamer for 25 minutes or until rice is al dente and milk has been almost completely absorbed. Critical Control Point: Heat to 165°F or higher for at least 15 seconds.
6. Fluff with utensil, and cover with plastic wrap. Critical Control Point: Hold for service at 135°F or higher.
7. Serve using a No. 8 scoop; 1 scoop equals 1/2 cup. Serve with apple wedges, banana slices, or blueberries.

Hungry for more recipes?
www.menurice.com/k-12



GET SOCIAL

Everyone can be an advocate for Arkansas rice by engaging on social media.

Give students a few minutes to Follow, Like, Retweet or Share each day to spread the word about the benefits of agriculture in our state.

Don't forget...social media involvement can make teachers eligible for rice prizes and gear, too!

 **@ARKANSASRICE**

 **@RICEARKANSAS**

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