BEFORE STARTING

Speaking

- What is your favourite food? Is it made of local or imported ingredients?
- What type of food is produced near your town?
- How often do you eat local food?

LOMELLINA, LAND OF WATER

Lomellina, in north-western Italy, is land of rivers, **rice paddies** and canals. It is a perfect mixture of water and land, a flat surface where there is the greatest number of rice paddies in Italy; a region where there are small villages, beautiful castles (for example in Vigevano, Sartirana, Olevano, Lomello and Scaldasole), ancient routes (the Via Francigena) and large farms, called “cascine” in Lombardia. The historical importance of the area is linked to the Via Francigena used in the Middle Ages by pilgrims walking from France to Rome. In Lomellina it passes through Palestro, Robbio, Mortara, Tromello, Garlasco to Pavia.

The present geographical features of the area are the consequence of the hard work of the local people who, for more than one thousand years, have transformed the original **marshland** into an agricultural area controlling the streams and canals around its three rivers, the Sesia, in the west, the Ticino, in the east, the Po, in the south. It is a fertile land, with several types of rice and high quality vegetables such as asparagus, beans, red onions and pumpkins. It is above all a man-shaped **landscape** but it is also surrounded by a natural habitat, the Ticino Valley National Park, where projects for the conservation of the area are trying to preserve the original ecosystem.

The area offers an artificial landscape because both in Piemonte and in Lombardia an efficient network of irrigation canals was built in the past to carry water to the rice fields, for example the Naviglio d’Ivrea, the Cavour Canal and the canal Diramatore Vigevano, used not only for the rice paddies but also to produce hydroelectric power. Leonardo da Vinci studied the area to build an efficient system of canals. But next to these artificial waterways there are also natural water **springs** and **fountain spouts** where **groundwater store** comes out at a constant temperature (10°-14°), creating surprising **wet meadows** and beautiful natural habitats where plants, fish, insects and birds can survive only in this particular microclimate. This area is called the ‘spring line’ and it is a peculiarity of the transition area between the High and Low Plains where Lomellina is situated. Here the underground water meets less permeable layers of soil and comes to the surface forming natural springs and, consequently, artificial fountain spouts to distribute water for the agricultural irrigation. This irrigation system has favoured the agricultural development of

the area and today Lomellina is particularly famous for its rice paddies and it forms, with the provinces of Novara and Vercelli, the biggest rice producing area in Europe. Rice was first cultivated in the sixteenth century and in Europe the first mention of rice farming refers exactly to this area, in particularly to Villanova, a small village near Vigevano.

So, the landscape of the area is strongly conditioned by the rice crops because the rice fields look like small lakes, divided by **bunds**, canals and long rows of poplars, when they are **flooded** in April and May and they get deep green and then golden at **harvest** time when the plants are mature and you can't see water anymore (in September and October).

KEY WORDS

- Bund: dike to minimize water losses
- To flood: when water spreads over surrounding land
- Groundwater store: water stored in rocks beneath the earth's surface
- Harvest: to gather when crops are mature
- Landscape: everything you can see when you look around in the countryside, at the seaside or in the mountains
- Marshland: an area of lowland which is always soft and wet because water doesn't flow away
- Rice field/ paddy: land where rice is grown
- Spring: a place where water comes out naturally from the underground
- Stout: an artificial pond created around a natural spring
- Wet meadow: a type of permanent prairie covered in winter by spring water to have grass for animals, also when it's cold.

CLASS ACTIVITY

1 Look at the map of Lomellina and find its main rivers and castles.

2 Unscramble the following words and then put them into the right sentence: DIPASDE – LODOFED – SLANCEDAP – UNSBD – GNIRSPS

1. In the Padana Plain the water of the _____ always has a temperature around 10°.
2. Rice _____ are an important source of income for farmers.
3. The _____ in Lomellina is conditioned by farmers' work.
4. Rice fields are _____ in early spring.
5. The _____ around a rice field are necessary to control water.

HOMEWORK

GEOGRAPHY

Draw a map of Lomellina and then write the names of these features in the correct space on the map: the Ticino, the Po, the Sesia, the Ticino Park, Robbio, Vigevano, Mortara, Sartirana and Scaldasole.

COMPREHENSION CHECK

Answer the following questions:

1. Where is Lomellina situated?
2. What are Lomellina's famous landmarks?
3. Why is Lomellina "a land of water"?
4. How is a spring born?
5. Where is the spring line?
6. When are rice plants harvested in Lomellina?
7. What colour are the rice plants when they are mature?

ELICITING

- Where is rice grown outside Italy?
- What does rice need to grow?
- Why do some products only grow in certain regions?
- Where is rice the most important food in the population's diet?

RICE

Rice is the staple food for half the world population and it is grown in over 100 countries worldwide. It is the second most grown cereal **crop** in the world after corn. It was first farmed in the valley of the Yangtze river in China but it is now grown everywhere in the world except Antarctica. It is cultivated in regions which have high humidity, sunshine and a good quantity of water. In Europe rice is grown in Italy, in France, in Greece and in Spain. It is also cultivated in Africa, in Australia and in four US states, Arkansas, Louisiana, Mississippi and Texas, known as the Rice Belt. But rice is mostly produced and eaten in Asia where it has been cultivated for over nine thousand years.

The first wild varieties of rice were cultivated in the Himalaya Valley, in eastern India and in southern China. It was Alexander the Great that, coming back from Asia, introduced rice in the Mediterranean countries. But the Romans did not use rice as food but as a medicine for rich patients and still in the Middle Ages it was used as a spice and a medicine for patients who suffered from a stomachache. Only some centuries later rice started to be cultivated and eaten as food. When the Arabs conquered the countries in the Mediterranean Sea, rice became popular from Egypt to Spain. In Italy rice became an important crop form 1468 when the first rice field was opened in the Padana Plain thanks to the Sforza family. The European settlers brought rice with them to America and the rice crop spread from Virginia to South Carolina until Mississippi, Arkansas, Louisiana and Texas in the 18th century.

Today China and India produce over half of the total amount of rice grown worldwide. In these countries rice is so important that in China the same word for rice is also used for food in general and in India rice is associated to prosperity. It is eaten with every meal in countries such as Thailand, Vietnam, Japan, China and India. It is a good source of magnesium, phosphorus, calcium, iron, thiamin, vitamin B6 and minerals and it provides 90 g of carbohydrates and 13 g of protein per 100 g. It is very low in fat, it doesn't contain cholesterol and it is sugar free and gluten free.

Rice is a cereal **grain** whose scientific name is Oryza Sativa. It includes two main varieties: the japonica one, with short roundish grains, and the Indica one, with longer

grains. Rice plants are like other grains such as wheat or oat. The main difference is that they are cultivated by flooding the field after the seeds are sown. The roots anchor the rice plants in the soil and when the plants grow, they develop long **leaves** and flowers, called **panicles** made up of small **spikelets**. The panicle is the top part of the rice plant and it is composed of primary branches and secondary branches carrying the spikelets. Once they are pollinated, the flowers develop rice grains. There are white, black, brown, red and purple varieties of rice and the grain can be long, medium and short. Rice is enclosed by a brown **hull** and many bran layers. After harvest, rice is processed in mills where the hull and the bran layers are removed carefully so that the inner part, the endosperm, doesn't break. The endosperm has a lot of starch in it. The embryo is a small part from which a new rice plant can grow. When the outer parts are removed, rice becomes white. Then it is packaged and sold.

At the supermarket we commonly find the long grain rice, like Basmati or American rice, or the short grain varieties including: Carnaroli, Arborio, Vialone nano, Baldo, Roma and Ribe (our local varieties, produced only in Italy). Shorter grained rice contains more **starch** and it is stickier when cooked, so it is used to make the typical risotto. We can find rice also in many other types of food, as well. It is in breakfast cereals, in baby food and soup. Breweries use rice to make beer and in Japan rice is also used to make an alcoholic drink, the sake.

KEY WORDS

- Crop: the amount of plants, fruit or grain grown in a season
- Grain: the small seed of the rice plant
- Hull: the outer covering of a rice grain
- Leaf – leaves: a flat green part of a plant growing from the stem; it can be round or oval.
- Panicle: the terminal part of the rice plant
- Spikelet: the basic unit of the rice inflorescence
- Starch: food substance found in potatoes, flour, pasta and rice

CLASS ACTIVITY: COMPREHENSION CHECK

Say if the sentences are true (T) or false (F), then correct the false ones.

1. The Romans cooked rice on special occasions. **T** **F**
2. In Italy rice was first cultivated in northern Italy. **T** **F**
3. There are two main varieties of rice. **T** **F**
4. The flowers of the rice plant are called spikelets. **T** **F**
5. The hull contains a lot of starch. **T** **F**
6. The embryo is used for a new rice plant. **T** **F**

CLASS ACTIVITY: WORD SEARCH

1 Find the words about rice and then copy them with the Italian translation in your notebook.

P A D P V C S E S I O G O G F
T A E J Q A M H E M X W R V Z
I Y D O A R U J V S T A R C H
L J C D L B G E A G I N R X F
Q R K O Y O D S E N P Z R S A
R E Y A L H X A L G A E P R S
J I G R U Y L B B H W I C Q A
U T K P K D B G D O K Z X U R
L Y I V Y R M Y L E L U W H D
V L U Q C A C F L U D Q P S A
F B U C Y T F E E A M O T A K
I B H H Y E T B Y J S X O F K
E M N X U S E L C I N A P L E
L B O L J C Z Q U H G P V R F
D Z B R P W N D W K B J Z Y D

CARBOHYDRATES	GRAIN	PADDY
FIELD	HULL	PANICLE
FLOODED	LAYER	SPIKELET
FLOWER	LEAVES	STARCH

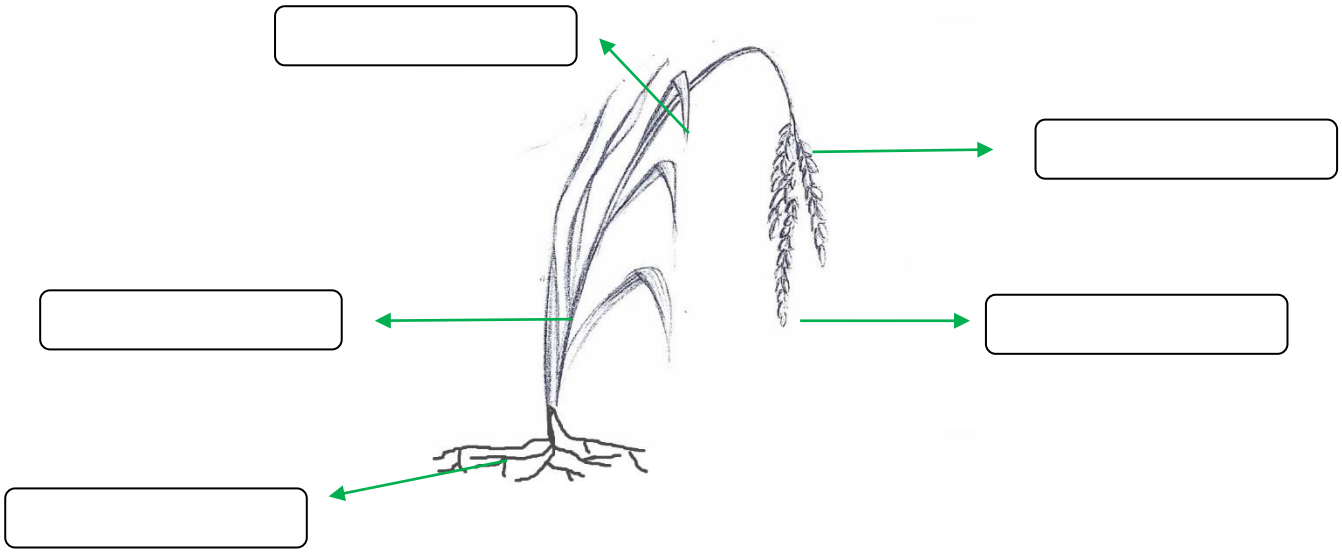
2 Complete the fact file about the rice plant

NAME: ORYZA SATIVA_____
SPECIES: _____
NUTRIENTS: _____
BORN IN: _____
GROWN IN: _____
HEIGHT: _____
COLOUR: _____
DESCRIPTION: _____

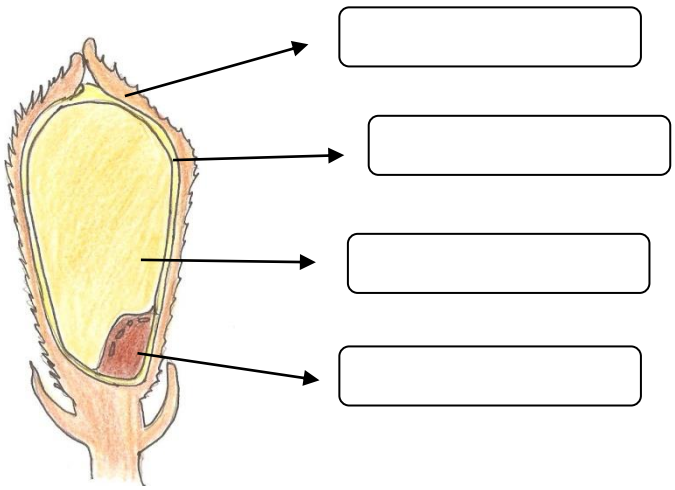
HOMEWORK

1. Internet project: Rice is a versatile ingredient used in many dishes across the world. Find out traditional recipes with rice in the following countries: Spain, China, India, Japan, Thailand.

2. Label the different parts of the rice plant with the following words: leaves – stem – spikelet – panicle – roots



4. Label the different parts of the rice kernel with the following words: hull- embryo – bran layers – endosperm



BRAINSTORMING ASSESSMENT

Work in pairs: answer the following questions orally.

1. Where is rice grown in Europe?
2. What are the world's major producers of rice?
3. Where is the Rice Belt?
4. How high can a rice plant be?
5. What are the Italian varieties of rice?
6. What are the parts of a rice plant?

Chalk talk

In turn write silently on the blackboard (or IWB) what you know about rice.

THE RICE CYCLE

The rice cycle is generally about three months long because rice seeds are planted in spring and harvested in autumn. It consists of different phases:

- Paddy preparation
- Planting
- Transplanting
- Growing
- Harvesting
- Preparing the grain

PADDY PREPARATION

The field is prepared and leveled to use water efficiently. A drainage system that allows the fast removal of water is also made at this time. Rice paddies are not at the same level so that water can flow from a field to another one. Canals, temporary and permanent bunds are built so that the irrigation system can work well.

PLANTING

Rice seeds are often put into seedbeds for germination and early growth. After the seeds germinate, the land is flooded for transplanting. Seeds can also be spread directly, saving cost and time.

TRANSPLANTING

The seeds are transplanted to the wet paddies. During this process, the fields are drained of excess water to the level of the lowest leaves on the rice plant and they are carefully monitored.

GROWING

The fields are irrigated and fertilized until the plants are mature. During the growing phase the plant flowers and begins to develop the panicles that, after pollination, produces the grains of rice.

HARVESTING

When the rice plants are ready to be harvested, the paddies must be completely drained. Irrigation is stopped about 10 days before. Harvesting has several steps: cutting the plants, moving the crop to another location, separating the grain from the rest of the plant, cleaning and storage. Harvesting can be made using machinery, but in many areas in Asia it is also carried out by hand in the traditional methods that have been used for generations.

PREPARING THE GRAIN

The brown hull and the outer layers of bran are removed and rice becomes white.

ANOTHER BEGINNING

When the harvest is over, seeds are also stored for the next crop. Finally, the land is irrigated again in preparation for a new crop.

There are also other different irrigation systems to use less quantities of water. Two irrigation systems ‘Alternate wetting and drying’ (AWD) and ‘Saturated soil culture’ (SSC), use less water than the tradition flooding. In AWD water is added only after the fields have been dry for 2 to 7 days whereas in SSC a shallow irrigation is given to get 1 cm of floodwater a day.

KEY WORDS

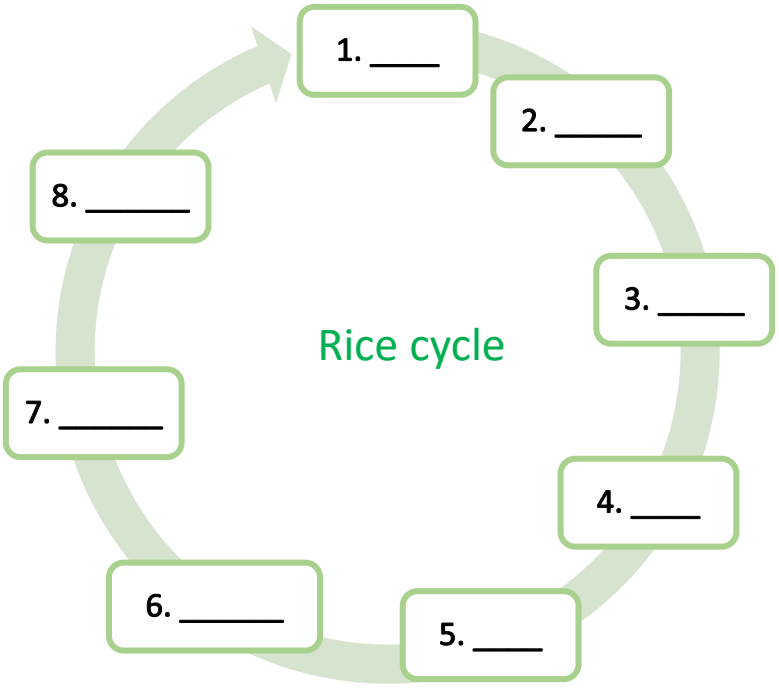
Match the following processes with their right definition.

1. to fertilize	a. to add water to the field
2. to harvest	b. to put seeds into the soil
3. to irrigate	c. to pick up the crops when they are grown
4. to transplant	d. to add nutrients to the soil
5. to sow	e. a dike made of soil to retain water in rice fields
6. bund	f. to move a growing plant to a different place

CLASS ACTIVITY

1. Put the agricultural steps of a rice crop into the correct order:

Harvesting – flooding – drainage – transplanting – sowing – preparation of the soil – use of fertilizers – grain selection



2. Before you watch the video answer the following questions:

1. What does AWD stand for?
2. Which crop uses the highest quantity of water?

After you watch...

Complete the sentences with the words from the box:

water – staple – 2025 – scientists - agriculture

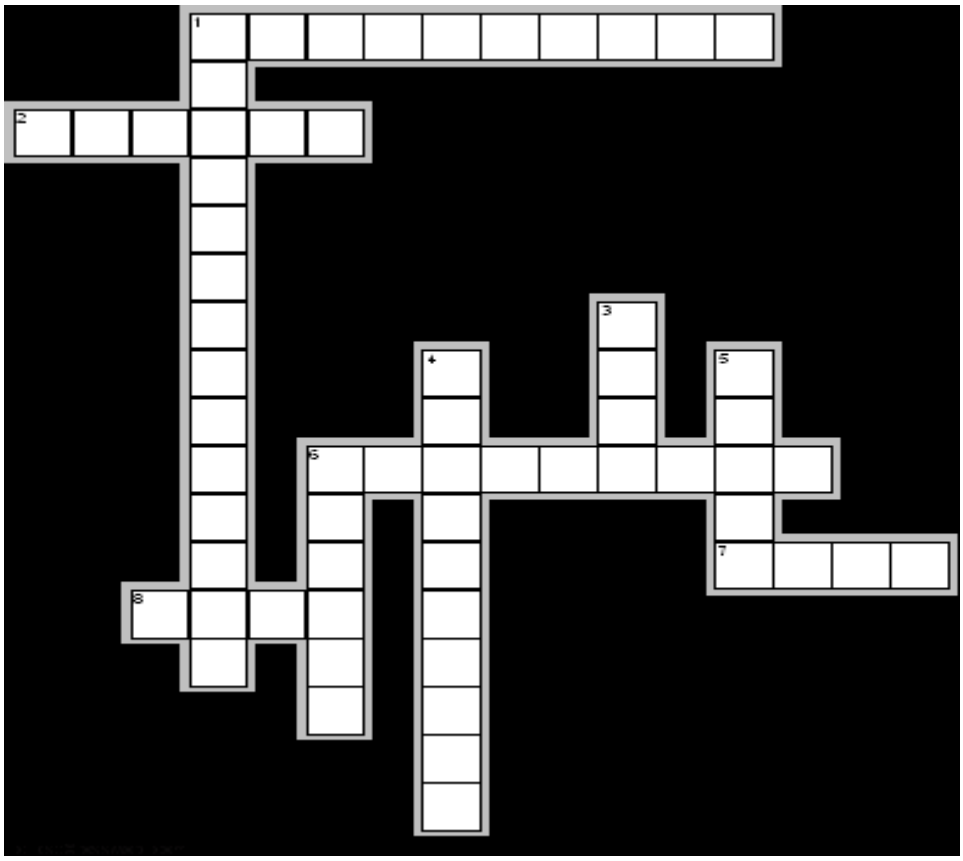
1. Water is used for the household, industry and_____.
2. Rice is the _____ food for almost half of the world's population.
3. By _____, 15 to 20 hectares of irrigated rice fields may suffer from water scarcity.
4. _____ have developed a new technique of irrigation called "Alternate wetting and drying".
5. AWD permits to use less _____ to grow rice.

HOMEWORK

All the following sentences are false. Write them correctly.

1. It takes rice plants about five months to grow.
2. Farmers don't need to check the water levees in a rice paddy.
3. There are only canals around a rice paddy.
4. Rice seeds are transplanted before their germination.
5. Fertilizers are never used.
6. Rice is harvested in summer.
7. When rice plants are mature, they are dark green.
8. Harvesting is only mechanical.
9. When it is washed, rice becomes white.
10. AWD and SSC are two types of fertilizers.

VOCABULARY REVISION: Complete the crossword.



ACROSS

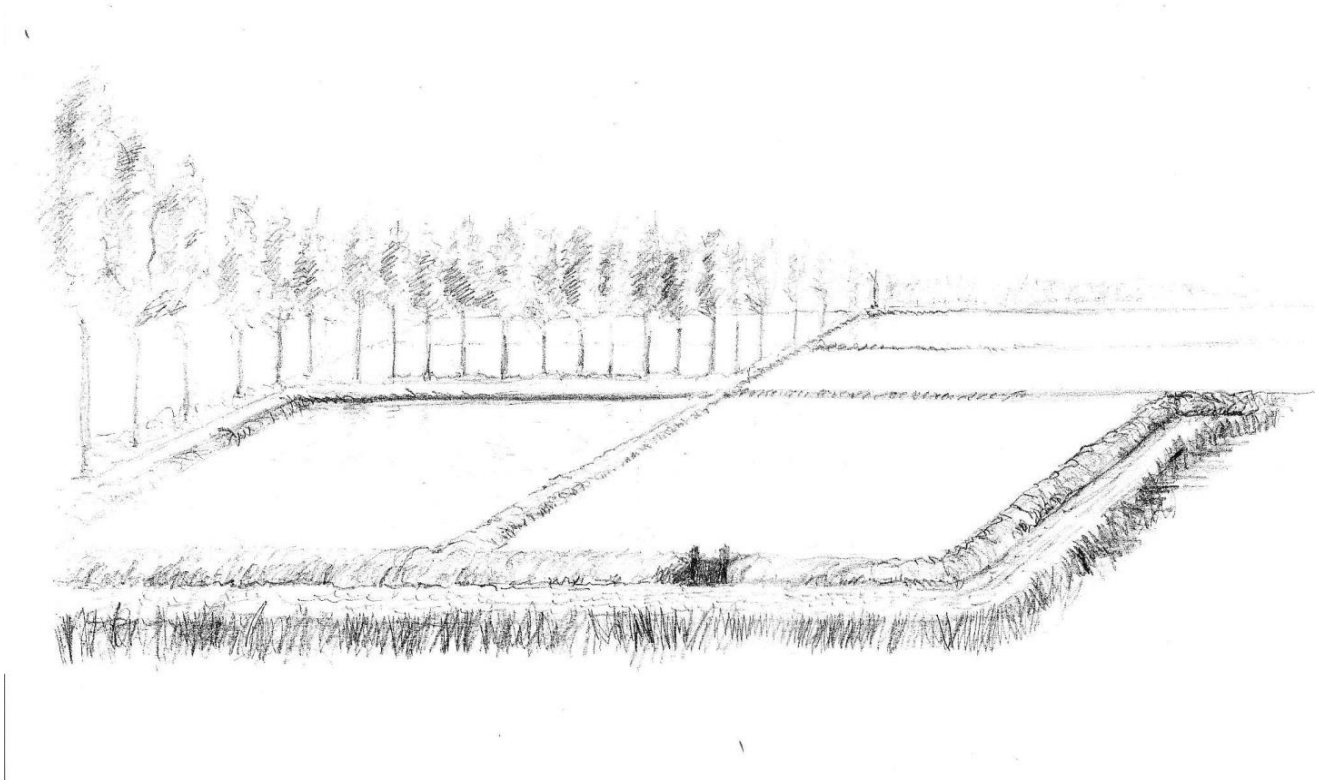
1. Nutrients added to the soil
2. The season when rice is harvested
6. An area of low wet ground
7. A green part of a plant
8. A dike made of soil around a rice paddy

DOWN

1. An artificial pond near a natural spring
3. The outer part of a rice grain
4. The process when plants are mature
5. A long water passage built into the ground
6. A field with wild grass and flowers

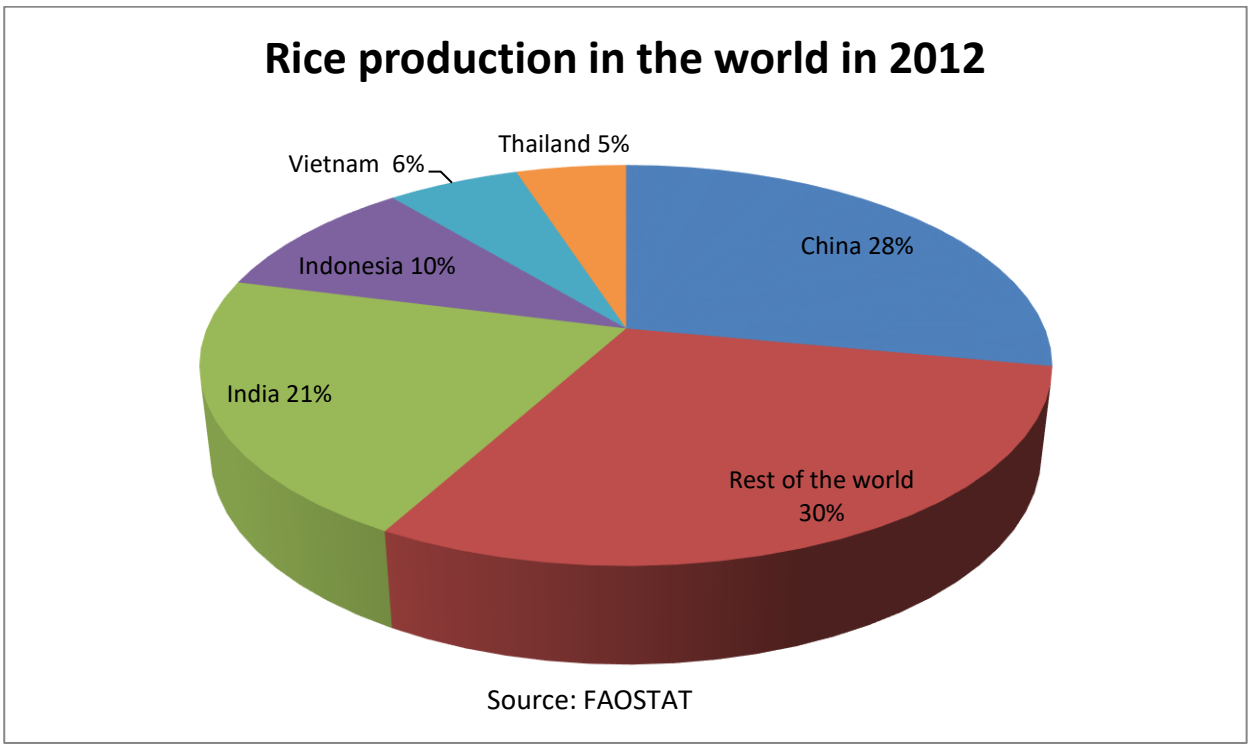
Revision: Speaking

What can you see in this drawing? Use the following instructions: “I can see……”, “In the picture there is/ there are….”, “The picture shows….”.



Eliciting

- Look at the photos of a rice paddy in Italy and in Asia. What is the main difference?
- Look at the chart about the rice production in the world. What can you say?



RICE PADDIES IN THE WORLD

Rice is the sustaining food for more than 60% of the world's population. In most Asian countries rice is not only the staple food but also an important source of work for the rural communities and in the latest years the amazing rice terraces in South-eastern Asia have become a tourist attraction, too, because they give tourists a great sense of relax, peace and comfort.

China is the largest producer of rice contributing for about 30% of the world's rice production. India occupies the second position followed by Indonesia, Bangladesh and Vietnam but the largest exporting country worldwide is Thailand.

Rice is also produced in Australia and the USA but the agricultural techniques used by the Australian and US farmers are very different from the Asian and African ones because in poorer countries technology is not advanced and what is made in just seven man-hours in the US fields it is made in 300 hours in Asia where farmers still adopt manual transplanting and seeding. In New South Wales, Australian rice growers use 50% less water than the world average thanks to technology. In Europe, in Australia and in the USA rice is cultivated in the plains and wet areas while in Asia the high demand for rice has obliged farmers to build rice fields also on the hills and mountains, creating landscapes of unparalleled beauty. Farmers cut flat sections of land into the **slopes** of hills to have more flat land for crops. Then they build a small **mound** of **soil** around each terrace. The mound **traps** rain to water the crops and to stop the soil from washing down the hill. In Japan, where there is very little flat land to provide the food they need, farmers also grow crops

under **plastic sheets** and they manage to have two or three rice crops each year. So everywhere in the world, from Italy to Asia, the farmers' work has changed the landscape of the region where rice is cultivated.

CLASS ACTIVITY

Watch the video about some rice terraces in China and choose the right option.

1. The Yunnan landscape looks like marbled swirls of
    a. green, brown and blue
    b. green and light blue
2. You can admire their beauty
    a. from the top
    b. from the bottom
3. The Yunnan rice terraces are in
    a. northern China
    b. southern China
4. The colour of the ponds in each terrace depends on
    a. on rice growth and local weather
    b. on the soil quality
5. The best time to admire the rice terraces is
    a. at sunset and sunrise
    b. at midday and midnight

Here are some examples of spectacular rice terraces in Asia.

The Honghe Hani Rice Terraces in Southern Yunnan, China, occupy an immense area. These spectacular terraces run down the slopes of the Ailao Mountains to the banks of the Hong River. The terraces show the Hani people's hard work on a difficult land: they rise by 3,000 steps forming a magnificent landscape. The Hani people developed a complex system of canals to bring water from the mountain tops to these terraces more than 1,000 years ago. They also created an integrated farming system that involves buffalos, **cattle**, ducks and fish and supports the production of red rice, the area's primary crop.

Terraced rice fields are common also in Japan where they are called *tanada*. The paddies are divided into many sections separated by stone and mud to contain water. An example of a terraced rice field in Japan is Hamanoura Tanada (Saga Prefecture) where you can look down from the top and see its many sections as stairs towards the ocean.

In the Philippines, on the island of Luzon, there are the highest rice paddies in the world. The Ifugao tribe carved amazing terraces in the Cordilleras which are 1700 m high. They are called Banaue Rice Terraces and they are a masterpiece of hydraulic engineering. The terraces were built 2000 years ago and they passed on from generation to generation as an example of an ancient civilization that survived to modernization and to the European

colonization. Because of their cultural importance and astonishing beauty, they are UNESCO World Heritage Site.
The Tourism industry has developed several activities for visitors which may include the traditional sightseeing of the terraces and visits to the tribes at the foot of the terraces.

Work in pairs: answer the following questions:

1. Where are the Honghe Hani Rice Terraces?
2. How did the Hani people bring water to the rice terraces?
3. What type pf rice do the Hani people grow?
4. How are rice terraces called in Japan?
5. Where are the highest rice paddies in the world?
6. When were Banaue rice terraces built?
7. Why are they UNESCO World Heritage Site?

KEY WORDS

- Cattle: cows and bulls on a farm
- Mound: a large pile of something
- Plastic sheets: greenhouses
- Slope: a piece of ground that is higher at one end than the other
- Soil: the top of the earth where plants grow
- To trap: to prevent someone or something from escaping

HOMEWORK

Internet project. Use the internet and an atlas to find out and say where these places are situated on the world map: Cordilleras on the Island of Luzon (The Philippines); Southern Yunnan (China); Arkansas, Louisiana, Mississippi, Texas (the Rice Belt in the USA); New South Wales and Murray River (Australia).

CLASS ACTIVITY

Group work: each group reads a paragraph about the rice paddies in different continents (Africa, the USA, Asia and Australia). Read it together, underline the most important information and talk about it to the other groups following the steps below.

Rice in Africa

Rice in Africa has ancient origins. It was cultivated in the Fezzan (modern Lybia) 3000 years ago. The Portuguese brought Asian rice to the coast of West-Central Africa, since it is usually known by words incorporating ‘arroz’. However, it may also have spread from North Africa across the Sahara, via the oases.

Today rice is mainly grown in West Africa where it is produced in upland and lowland ecosystems, in irrigated fields, in mangrove production systems and in flooded environments. The African rice is of uneven quality and it has got impurities because milling and cleaning are not accurate and they

often mix different rice varieties. There are exceptions to this, as in Guinea and in Mali, where local rice is of good quality.

Rice in the USA

Rice was first cultivated in the USA by accident in 1685 when a ship captain gave a small quantity of rice as gift to local planters in South Carolina to thank them for their help. Fresh-water marshes of North and South Carolina and Georgia were the ideal environments for rice production so rice became an important crop for colonists. Today rice is still an important crop and most rice used in the USA is grown there. It is mainly cultivated in Arkansas, Louisiana, Mississippi, Texas (the Rice Belt) and California. American farmers use high technology in all the processes of growing in order to save time and to have high quality rice: machinery creates perfect fields for uniform flooding and controlled draining; laser guides help to control water levees for optimal results and fertilizers are spread by airplanes. Thanks to these innovative methods the USA are now one of the largest exporters in the world.

Rice in Asia

Rice is mostly cultivated and eaten in Asia and in south-eastern countries. This means that it is very adaptable: it is grown in the humid area of tropics, sub-tropics and temperate regions, from the lowland of India to the high mountains in the Philippines and in Nepal.

It was first cultivated in the valley of the Yangtze river in China in the 6th millennium B.C.

Where there isn't any flat land the only way to cultivate rice is the terrace system. The terraces are in the countryside of many countries of Asia, including China, India, Japan, Bali and the Philippines.

The rice terraces are completely flooded because most rice varieties maintain better growth and produce higher yields in flooded soils than in dry soils.

The flooded ponds in each terrace change their colour depending on rice growth and local weather. They are beautiful especially at sunrise and sunset**.**

Rice in Australia

Rice was brought in Australia by Chinese gold prospectors around 1850 and the first cultivation dates back to 1914 when the Victorian Government allocated the first fields along the Murray River.

In Australia rice growing is concentrated in Murrumbidgee and Murray Valleys of south-western New South Wales because in this region there are large areas of flat land, suitable soils, availability of water, rice storage and milling in the towns nearby and it is quite close to the port of Melbourne from where Australian rice is exported. Australian farmers are specialized in the production of high quality medium grain rice, a rich variety of rice grown only in a few countries. They achieve the best yields and quality of medium grain rice in the world, using less water than any other country in the world. As result rice is highly exported to international markets, including Japan and the Middle East.