

PRIMARILY for U.S.*

GRADES 2-3

* Understanding Science

Volume 30 • Issue 1 2006 - 2007 Fernbank Science Center • DeKalb County School System ISSN 0742-6518

What is paper?

Things to do today!

Morgan

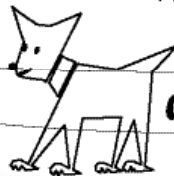


Walk Ginger

Help Mom fix the car

Practice Piano

Listen to music



Ginger

NOTE

Don't forget
to order pizza!!

Fresh

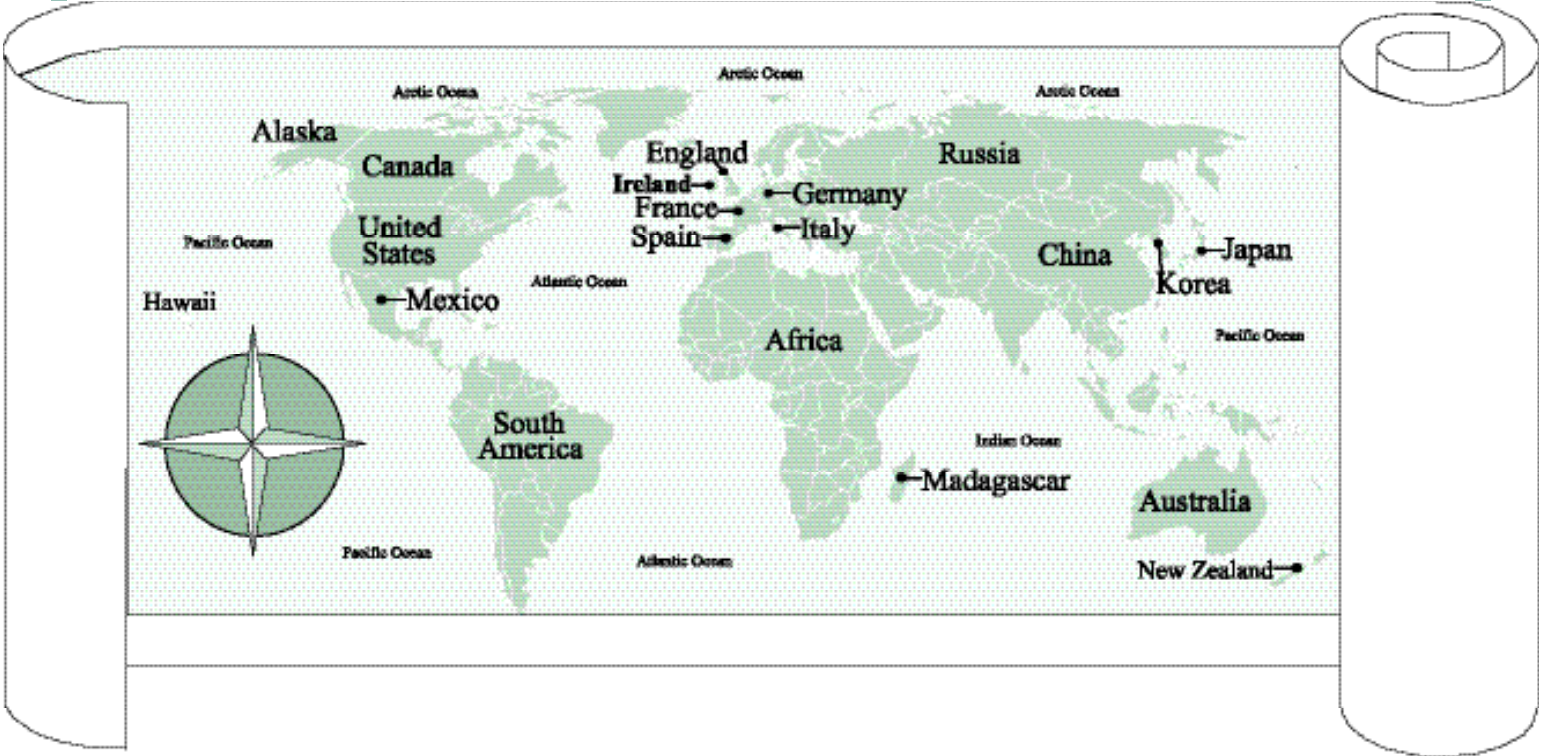
PIZZA

Baked!

Where does paper come from?
How is paper made?

Teacher's Page

Students should answer each question using information from this issue. Then they circle each country on the map.



Where was paper invented? _____

Where was toilet paper invented? _____

Where did mass production of paper begin? _____

Where was the first stamping mill built? _____

What Is Paper?

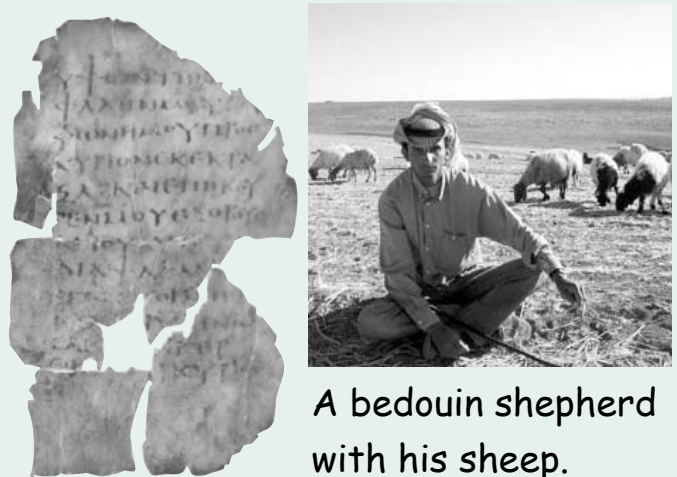
Before paper was invented, people wrote on other materials.

Bark



Papyrus came from the Papyrus plant.

Parchment



A bedouin shepherd with his sheep.

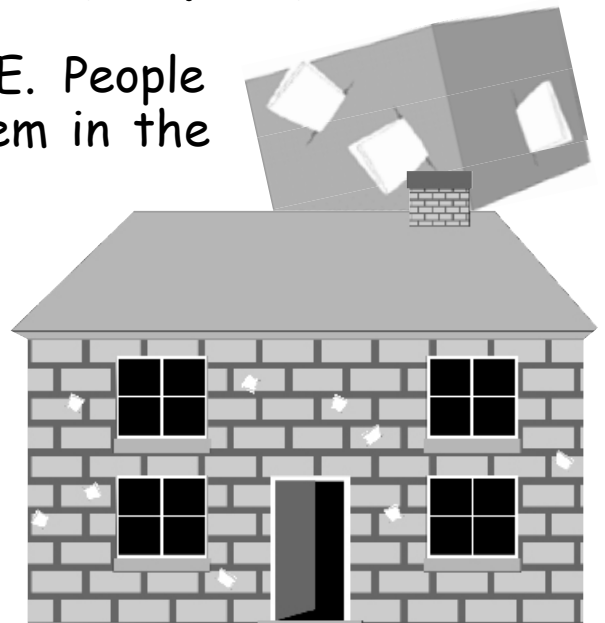
Parchment came from animal skins.

Papyrus and parchment were called **pre-paper**. These materials were not paper.

Where does paper come from?

Paper was invented in China in 200 BCE. People wrote prayers on paper and put them in the bricks of their houses.

Paper is made from plant fiber. Fiber is a tough, strong material that must be softened with water. Then it is pounded into **pulp** and dried.



On the Paper Trail

Papermaking moved to Korea about 800 years after it began in China. Korean people invented two very important **items**: toilet paper and envelopes!



Next, the Japanese began to make paper. Japanese paper was very beautiful and felt like silk.

Papermaking comes to Europe

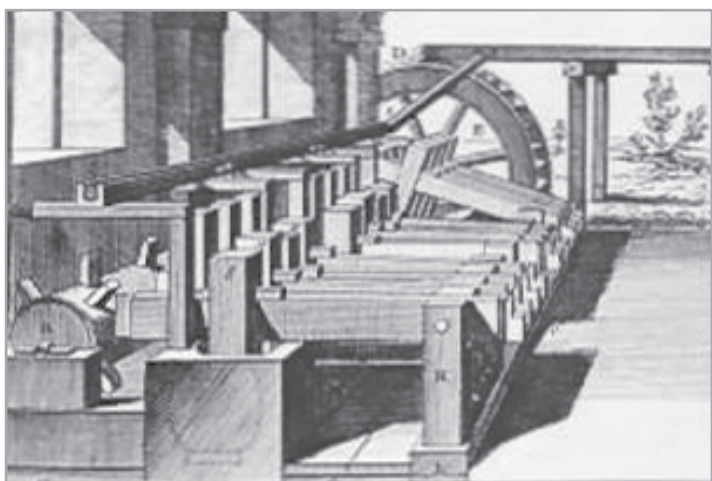
Italians made the first paper in Europe in 1290 CE. Italian paper was made from rags and old clothing.

But people still beat the softened rags by hand! Do you think this was hard work?



In Spain, another method of beating was invented called **stamping**.

Stamping was done in a mill. It used large wooden hammers to pound the pulp. Stamping made so much noise, you could hear it a mile away!



An early 18th century stamping machine. Notice the large hammers that pounded the pulp .

How is paper made?

Paper can be made from many different plants.



Pine trees



Potato plant



Cotton plant



Cactus plant



Cabbage plant

Paper also can be made from rags, straw or even old paper. This is a kind of recycling!



rags



straw



paper

In early papermaking, there were four steps.



First, the fiber or other material was boiled in water to make it very soft.



Then the soft fiber was beaten with sticks or rocks to "break it down" and make it soft. This soft material is called pulp.



Next, the pulp was put on a special mold. The mold gave paper its flat shape.

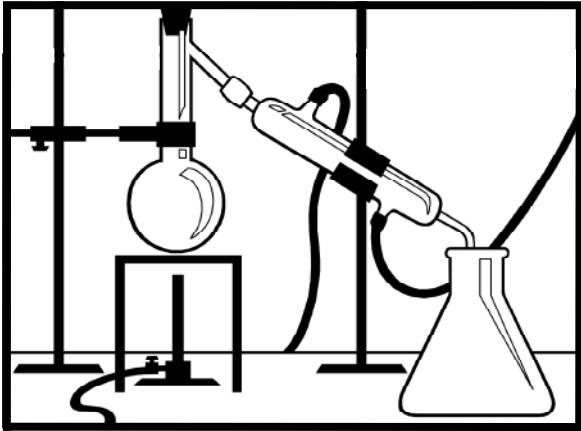


Finally, the paper was put in the sunshine to dry.

Paper, Paper Everywhere!

We use a lot of paper. Each person in the United States uses about 675 pounds (307 kilograms) of paper each year!

Different chemicals are added to produce paper of different colors and textures.



Now, paper mills use machinery. The most important machine is a Fourdrinier Machine.



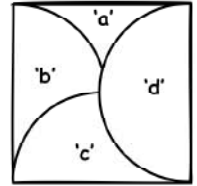
Answers to Teacher's Page

1. China; 2. Korea; 3. Japan; 4. Spain

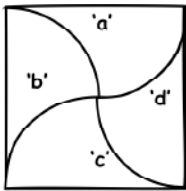
Parents' Corner

Create an Envelope

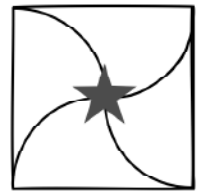
1. Trace this pattern onto a sheet of colored paper.
2. Cut out the pattern.
3. Write a message to a friend in the center.
4. Fold 'a' to the center.
5. Fold 'b' over 'a'.
6. Fold 'c' over 'b'.
7. Fold 'd' to the center.
8. Tuck the side of 'd' closest to 'a' underneath 'a' to create a pinwheel look.
9. If you want to, put a sticker in the center to hold the envelope together.



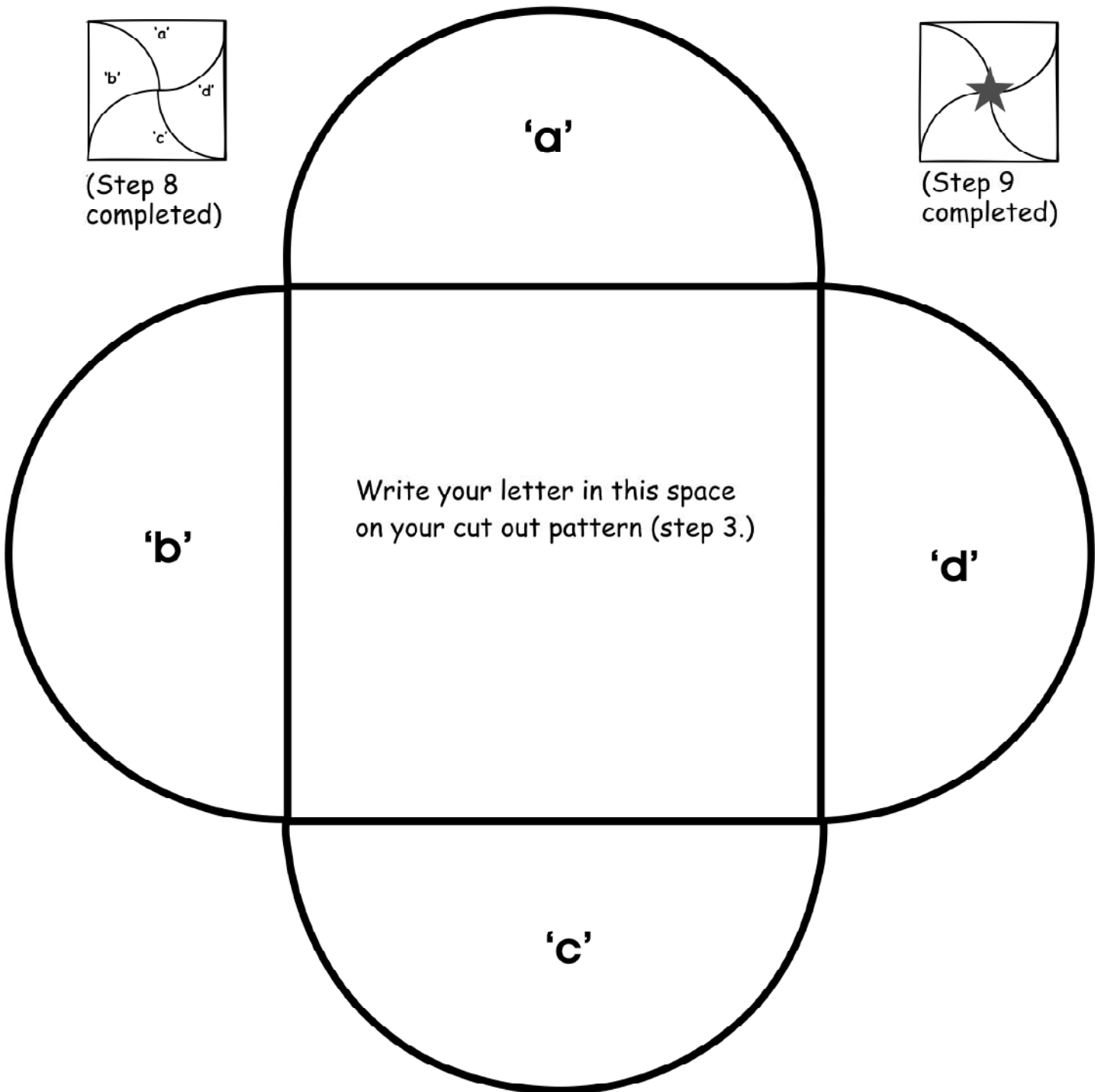
(Steps 4 - 7 completed)



(Step 8 completed)



(Step 9 completed)



Paper Work

Which of the following jobs are needed in the paper industry?



Machine repair person
(a person who fixes machines)

Industrial engineer
(a person who designs machines)

Administrative Assistant
Environmental Expert

Accountant
Forest manager

Salesperson
Truck driver

Business owner
Warehouse worker
Factory worker

Farmer
Writer
Chemist
Artist

Answer: ALL these jobs are needed to make paper!

New Words

item
pre-paper
pulp
mass production
stamping



This issue addresses the following standards:

Science	Math	Lang Arts	Soc Studies
QCC	GPS	GPS	QCC
2 Phys 5-7	M2P1,3	ELA2R3,4	Core 34, 40
GPS	QCC	GPS	GPS
3 SC3S1-3 S3P1	GEOM 7, 9	ELA3R2,3	Core 51 Geog 13

Written by Mary Larsen and Linda Lögberg.
Layout, illustrations and graphics are by Sheila Ward.

It is the policy of the DeKalb Board of Education not to discriminate on the basis of age, sex, race, color, religion, national origin, disability or handicap in its education programs, activities or employment practices.