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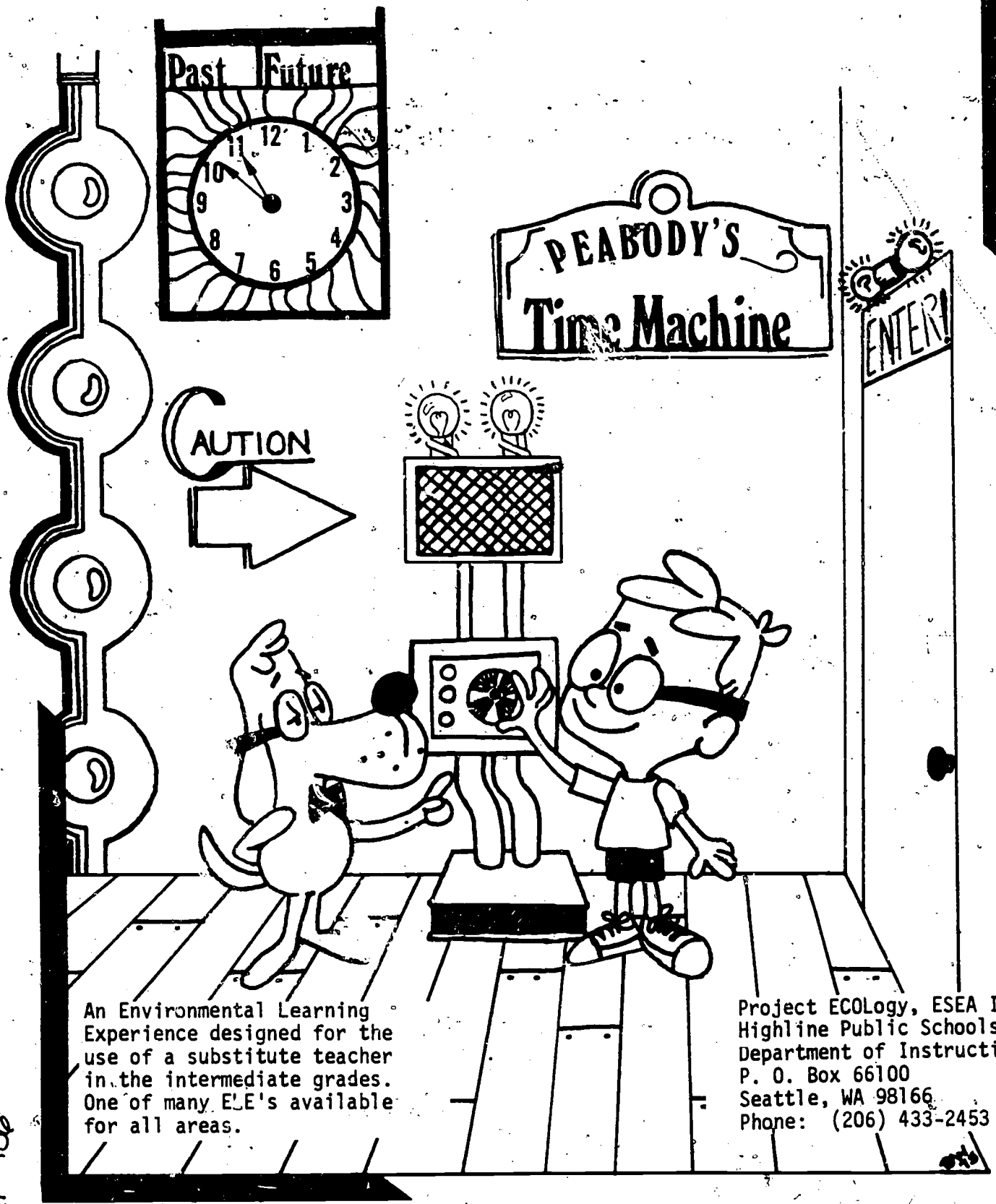
ABSTRACT

This is one of a series of units for environmental education developed by the Highline Public Schools. This unit is designed for use by a substitute teacher for instruction of intermediate grade elementary school pupils. The kit provides three days of lesson plans. There is closure at the end of each lesson and each day. Much emphasis is placed on the visual aspect of learning. Numerous transparencies are used with accompanying storylines. Sheets for making transparencies are provided. (RH)

HIRSCHEL PAK



An Environmental Learning Experience designed for the use of a substitute teacher in the intermediate grades. One of many ELE's available for all areas.

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INTRODUCTION

This inter-disciplinary kit provides three days of lesson plans for the substitute teacher. There is closure at the end of each lesson and each day. It would be ideal to complete the three day unit.

Much emphasis is placed on the visual aspect of learning. Numerous transparencies are used with accompanying storylines. This is done not only to stress a given topic, but also to show that there is a lighter side to our environmental situation.

NOTE: When using the overhead projector, don't be afraid to share it with the kids. For many it will be a unique experience.

CONCEPTS

We must be aware of our past.

Man must work together to save our natural resources.

Man must find a means for clean, economical Mass Rapid Transportation.

When building, man must take into consideration the following aspects: land use, water, air, noise, raw materials, and pollution.

We should use our materials carefully and recycle all we can.

Through letter writing, the student can become aware of organizations that deal with improvement of our environment.

Through reading we can learn about energy and its production.

There is a specific jargon needed to understand the topic of ecology.

We must share our ideas.

If man is not cautious, he may destroy many endangered species.

The student must become aware of our environment and how it is used.

Over the years man has learned to adapt and change the environment.

Man has basic needs.

Art is a means for expressing thought.

MATERIALS - Enough for 35 students

DAY ONE

Transparencies
Overhead projector
Large newsprint (unlined)
Crayons
Pen for overhead
Ditto masters
Cardboard box (readily available from the liquor store)

DAY TWO

3' x 5' sheets of paper (it usually comes in rolls)
Writing paper
Penmanship paper
Envelopes
Ditto of addresses
Transparencies
Ditto of questionnaire
Ditto of reading material
Ditto of puzzle

DAY THREE

Large art paper
Dittoes
Transparencies
Overhead projector
Pens for overhead

DAY #1

MATH

CONCEPT: The students must become aware of our environment and how it is used.

MATERIAL: Math ditto
Cardboard box

INTRODUCTION: *For the next couple of days we will be working on material involving environmental awareness.*

Write ENVIRONMENT on the board. *What does it mean?* (The environment is all that surrounds us.) Give an example. *Is the room your environment?* (Yes. So is my home and everywhere I go. Where I live is my environment.)

What other things do you think we will cover? What is one main concern you always hear about?

Pollution - (have student write on board) *Fine. What else?* Go to waste can and pick out piece of paper. *What is this?*
Garbage - *What is another word for garbage?* Waste.
And this (turn lights on and off) Electricity. *Electricity is called* energy.

Finally. Do you think we will sit around doing nothing? What else will we learn? What man can do to make his environment better.

Hold up cardboard box. *What do you think we will do with this?* Put things in it. *What type of things?* Garbage. *Not any garbage. Just the product we use mo[st]. Can anyone tell the class what that may be?* Paper. *Good. We wi[ll] collect the paper from the class for three days to see how much we th[row] out. Even milk cartons. However, what should be done to the cartons before they are discarded?* Rinse them out.

Fine. To begin with we will decipher the code I have for you. Write this example on the board.

(D) 25 + 25 = 50

Find the answer then look for the matching code on the next column.

50 = δ

Greek		English
δ	=	D

GREEK GARBAGE

KEY

To save paper, do work on back.

D	2 X 25	C	6 x 301	η	1705	χ	2976
U	2841 + 794	H	1 x 463	β	4575	ε	999
F	4 x 19	S	4686 - 2981	κ	76	o	232
A	6928 - 4558	B	991 + 991	γ	1982	ι	63
K	8 x 29	M	1026 + 1026	δ	50	σ	3704
L	1592 + 2112	R	9 x 7	θ	2052	λ	1806
W	9 x 56	T	8721 - 5745	μ	480	ω	463
G	$6\overline{)54}$	I	6 x 147	ξ	3735	τ	10
E	9000 - 4425	P	2 x 333	π	504	Ω	882
N	3 x 333	V	2 + 8	ψ	11	Σ	666
Y	240 + 240			ζ	2370		
O	$9\overline{)99}$			α	9		

Toss that trash in the can
χψηπ χωϑχ χιξηω ωε χωβ λξε,
by doing this help your fellow
νμ δψωεα χωωη ωβσε μψξι κβσσψπ
man so clean up the litter in your
θξε, ηψ 2σβϑε ξε χωβ σωχχβι ωε μψξι
sight make the world around
ηωαωχ, θϑσβ χαβ πψισδ ϑιψξεδ
you bright
μψξ νιωαωχ.

GREEK GARBAGE

To save paper, do work on back.

(D)	2 X 25	(C)	6 x 301	η	1705	χ	2976
(U)	2841 + 794	(H)	1 x 463	β	4575	ε	999
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χψπη χωϛχ χιζπω ωε χωβ λξε,
νμ δψωεα χωωη ωβθσ μψξι κβσσψπ
θϛε, πψ λσβϛε·ξσ χωβ σωχχβι· ωε μψξι
πωαωχ, θϛοβ χωβ πψισδ ζιψξεδ
μψξ νιωσωχ.

DAY #1

READING

CONCEPT: Over the years man has learned to adapt and change the environment.

MATERIALS: Print ditto on both sides of paper

INTRODUCTION: *Man needs certain things to live. What are some of these things?* (Write on board)

Man needs water

What else? Something we breathe?

Air

What else?

Food and land

How about protection?

A home or shelter

And in the winter what is needed?

Heat, warmth

For reading today, I have a handout for you entitled "Man the Food Gatherer and Hunter".

What can you tell by the title? It talks about man. *That's right. When is/and or was man a food gatherer and hunter?* Many years ago man used to follow the wild animals. He would also gather his food instead of farming. He didn't know about farming long ago.

When you have finished, answer the questions on the back. Why are the questions on the back? They are there to save paper. *We will correct the paper in class.*

When correcting do not worry about the exact answer. However, be sure to discuss the topic. (Answers are included.)

Man the Food Gatherer and Hunter

Early man got his food about the same way that wild animals do today. He found nuts and berries and fruits to eat. He hunted and killed animals. He fished. He spent most of his time finding enough food to keep alive. When he could not find enough food, he sometimes starved to death.

To stay alive, early man had to go where the food was. First, he would eat all the nuts, berries, and fruits in one place. Then he would move on to another place to find more. He followed the animal herds to get meat and skins. He had to be a wanderer. His physical environment left him no other choice.

Yet, early man was not just another animal. He could <u>think</u>. This was the main difference between him and the animals. He used his brains to think of new ways of doing things. He watched animals and saw how well they could do some things. He saw what food they ate. He learned from them.

There was another difference between early man and the animals. He stood on two feet instead of four. That left his hands free. With free hands, he could do some of the things he had thought of doing. Early man made weapons of stone, and later of bone. He made traps to catch small animals. He made nets to catch fish and birds. He used animal skins to make clothes. He used fire to hunt, to keep warm, and to keep himself safe.

Most important of all, early man was able to remember what he saw and did. He taught his children what he learned. Because he did all these things, early man was a thinker, a learner, and a teacher.

Man the Food Gatherer and Hunter

STUDY QUESTIONS

How do you think man discovered fire? There is no one answer.

What are some of the ways early man used fire?

What are some things that early man could have learned from animals?

In what ways might early man have taught his children?

What were important differences between the ways in which early man and animals taught their young?

What are some ways in which man teaches his children today? What are some ways in which he teaches other men?

Think of some ways in which animals teach their young.

FROM: The Human Adventure: Ancient Civilizations, Allyn & Bacon (Pub.)

Man the Food Gatherer and Hunter KEY

STUDY QUESTIONS

How do you think man discovered fire? There is no one answer.

Possible answers: (1) lightning
(2) sun
(3) volcanoes
(4) rub sticks
(5) hit rocks

What are some of the ways early man used fire?

Possible answers: (1) to keep warm
(2) to cook over
(3) for protection
(4) for light

What are some things that early man could have learned from animals?

Man learned what fruit and berries to eat.
He learned where to go for water.
He saw what foods they ate.

In what ways might early man have taught his children?

He showed his children what he had learned. They were able to remember what he learned.

What were important differences between the ways in which early man and animals taught their young?

Man is a thinker and a teacher. He is able to show his children new ways to do things. The animals cannot.

What are some ways in which man teaches his children today? What are some ways in which he teaches other men?

Man teaches children by sending them to school. By talking and exchanging ideas.

Think of some ways in which animals teach their young.

They show their young what to do.

FROM: The Human Adventure: Ancient Civilizations, Allyn & Bacon (Pub.)

DAY #1

SPELLING

CONCEPT: The student must become aware of a specific "jargon" in order to fully understand ecology and its impact.

MATERIAL: Ditto

INTRODUCTION: *For spelling today we will cover a specific "Jargon".* (Write this word on the board.)

Would anyone care to venture a guess?
It's an animal.
No, it has to do with words.
Is it a language?
It is a type of language. Listen to this sentence. We must know the "jargon of ecology to fully understand its impact.
The words of ecology.
You are super close. Another word for words.
Vocabulary
Good show. What are some words or "jargon" used when talking about ecology?
There is environment. *Yes*
Resources. *Yes*
Recycle. *Fine*

I have a handout for you. (Pass out list) *On it are ten words. As a class, I would like you to add ten more words to this list on the back. They will also be written on the board.*

(Give class a minute to look over list). *Alright, who has a word?*

Wildlife, *excellent*	Resources, *yes*
Litter, *neat*	Water, *good*
Garbage, *super*	Oil, *right*
Waste, *ah*	Paper, *ok*
Man, *good*	Gas, *fine*

You will use these the same way as the words on the front. These 20 words will be your spelling list for the next couple of days.

ENVIROCABULARY

KEY

1. The natural environment must not be disturbed.

   Mine _____

   Dictionary our surroundings

2. It is a good thing to recycle glass, paper and metal.

   Mine _____

   Dictionary to use again

3. Air pollution often creates smog.

   Mine _____

   Dictionary to make dirty - as used is a noun

4. We live in the community of man.

   Mine _____

   Dictionary a group of people doing or working together

5. By practicing good ecology, we may save nature.

   Mine _____

   Dictionary The branch of biology that deals with the relations between living organisms and their surroundings.

6. Conservation of gas will make gas last longer.

   Mine _____

   Dictionary to keep from wasting

7. All will be able to buy gas if it is rationed.

   Mine _____

   Dictionary shared, allowance

8. The sun is the primary source of energy.

   Mine _____

   Dictionary power

9. Smog often occurs during the morning hours.

   Mine _____

   Dictionary a mixture of fog and smoke

ENVIROCABULARY

1. The natural environment must not be disturbed.

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   Dictionary _____

9. Smog often occurs during the morning hours.

   Mine _____

   Dictionary _____

DAY #1

LANGUAGE ARTS

CONCEPT: Man has many ways to communicate. One is writing creatively.

MATERIAL: Transparency, overhead
Colored paper (8 x 10) - 1 for each student

INTRODUCTION: *What are some ways that we communicate?* (Write answers on overhead)
We talk, use telephone, write, newspaper, books, draw, pictures

Of these ideas, which do you feel is the easiest to understand?
A picture or drawing, cartoon

Today for Language Arts we will draw a picture by writing. (Put example on overhead)

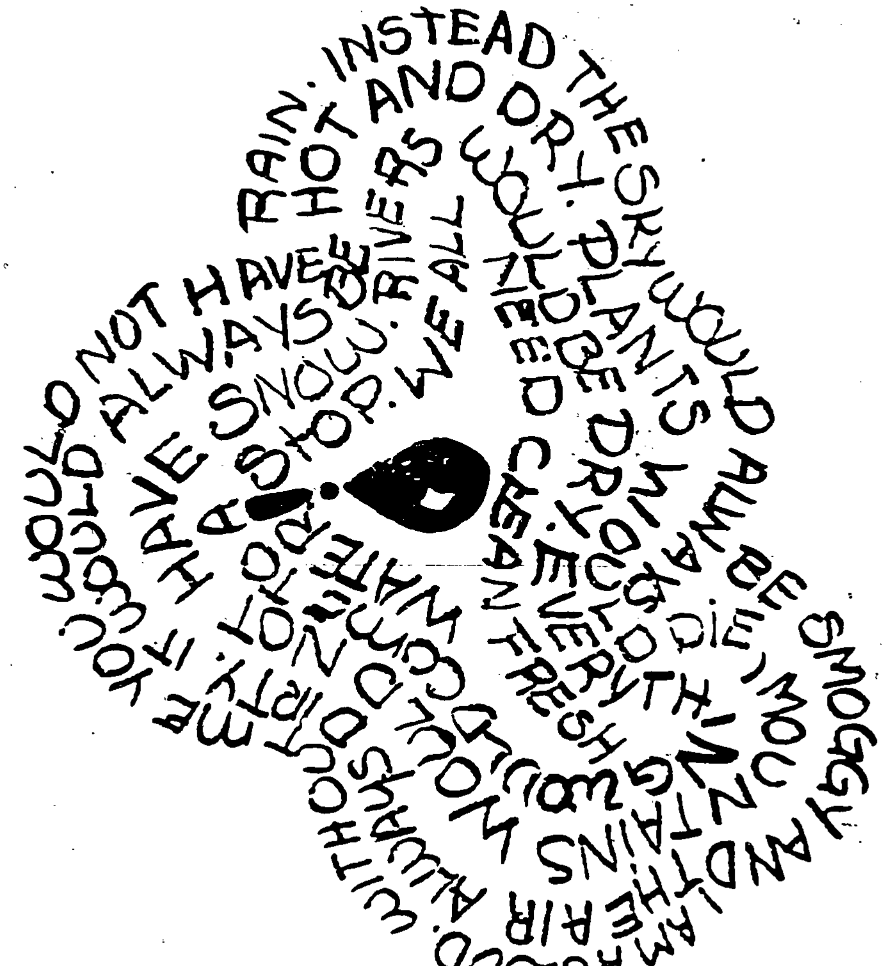
Use words to describe, or tell a story, about something that is in our environment. What are some ideas you may have? (Write on board.)
We could write about trees, flowers, coke can, water, air, land, space, food, people.

These are good ideas.

What can be done to make our writing easy to read?
We could print. *Super*
Make a light outline. *Excellent*
Plan ahead. *Good*

If you need help with the spelling, feel free to ask. If time allows, we will read these aloud.

When finished, post on wall.


I AM A CLOUD. WITHOUT ME YOU WOULD NOT HAVE RAIN. INSTEAD THE SKY WOULD ALWAYS BE SMOGGY AND
THE AIR ALWAYS DIRTY. IT WOULD ALWAYS BE HOT AND DRY. PLANTS WOULD DIE, MOUNTAINS
WOULD NOT HAVE SNOW. RIVERS WOULD BE DRY. EVERYTHING
HAS TO STOP. WE ALL NEED CLEAN FRESH WATER!

DAY #1

SOCIAL STUDIES

CONCEPT: Man has basic needs.

MATERIAL: Overhead, transparencies, pen for overhead

INTRODUCTION: *Today for Social Studies we are going to talk about man's basic needs. What are man's basic needs?* (As each student answers, have them write on the overhead.)

Man's basic needs are: food, water, land.

What else is missing? Where does man live?
In a home or shelter.

OK. In the Arctic he has shelter, but what is needed?
He needs heat.
Super.

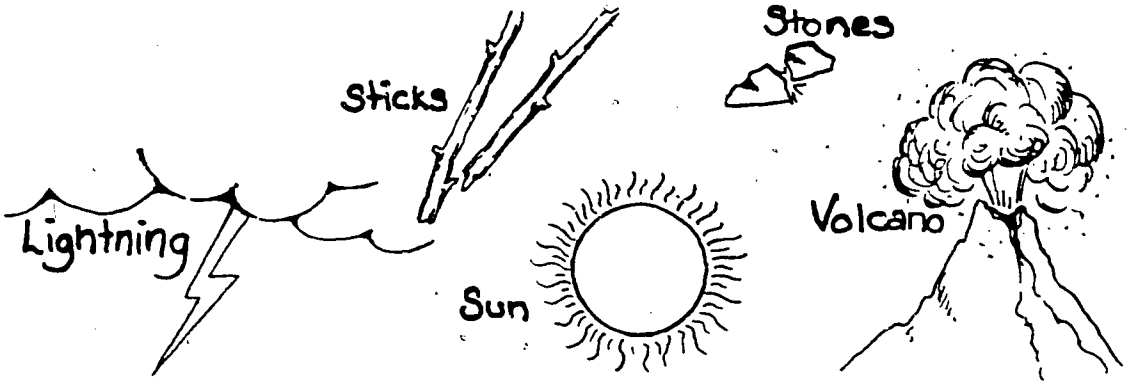
We are going to center on one of these needs. It has to do with winter. What is it?
Warm, heat.

That's right. How do you think early man kept warm?
He kept warm by using fire.

How was fire discovered? Did he rub two cub scouts together? No.

Man discovered fire by lightning
rubbing sticks together
hitting stones together
the sun may have started fire
volcanoes

} As each is answered make a quick sketch of the cause. Don't be afraid to draw.



I have a story on the way I feel fire was discovered, It is called (turn on overhead) *"Fire - How it was Discovered".*

FRAME 1

Peabody here. This is my friend Sherman. Today we will travel to the year 8000 B.C. The period of early man. The season: Spring, during electrical storms.

The Way Back performed as usual. Within minutes we were transported to the period of early man.

FRAME 2

"Look," said Sherman, "Everyone is running about." "What seems to be the problem?" asked Peabody. The Early Man cried in panic. "Large bolts are falling from the sky. They make a tremendous booming noise when they crash. For days afterward the mountains are aglow."

-- pause --

Of course, our friend didn't know that what he saw was lightning. The glow fire. We had to find a way to take him to the fire.

FRAME 3

Sherman, the bright boy he always is, suggested we go to the top of a mountain to look for fires. We took our friend with us.

When at the top, the three of us were exhausted. Being tired, a spot was found near a tree.

FRAME 4

Sherman thought this was a poor idea. Why would it be a poor thing to do? (Lightning might hit the tree.)

Peabody said reassuringly, "not to worry." Late that night, lightning did strike the tree.

FRAME 5

Our friend, having not seen fire before was intrigued. Stepping nearer he was amazed by its warmth, though the night was cold.

FRAME 6

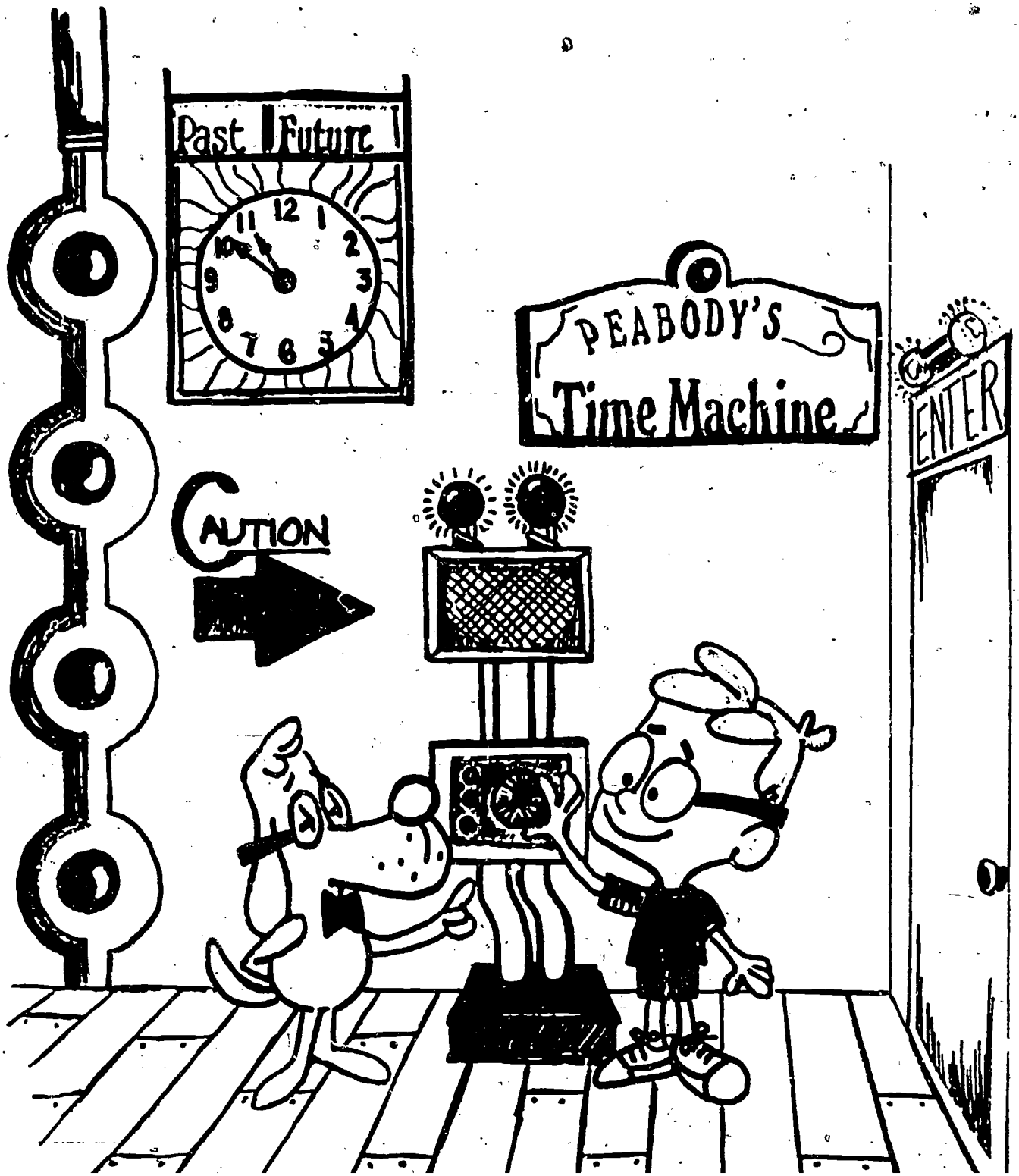
"Hmm," said the early man. "Is it sun. It feels warm like the sun, but it is not light out. Perhaps it is a cow - it does eat dry grass, but it doesn't moo. Maybe it is a dragon. That always has to be fed." At this time Peabody interrupted. "Sir," he said. "It is called fire".

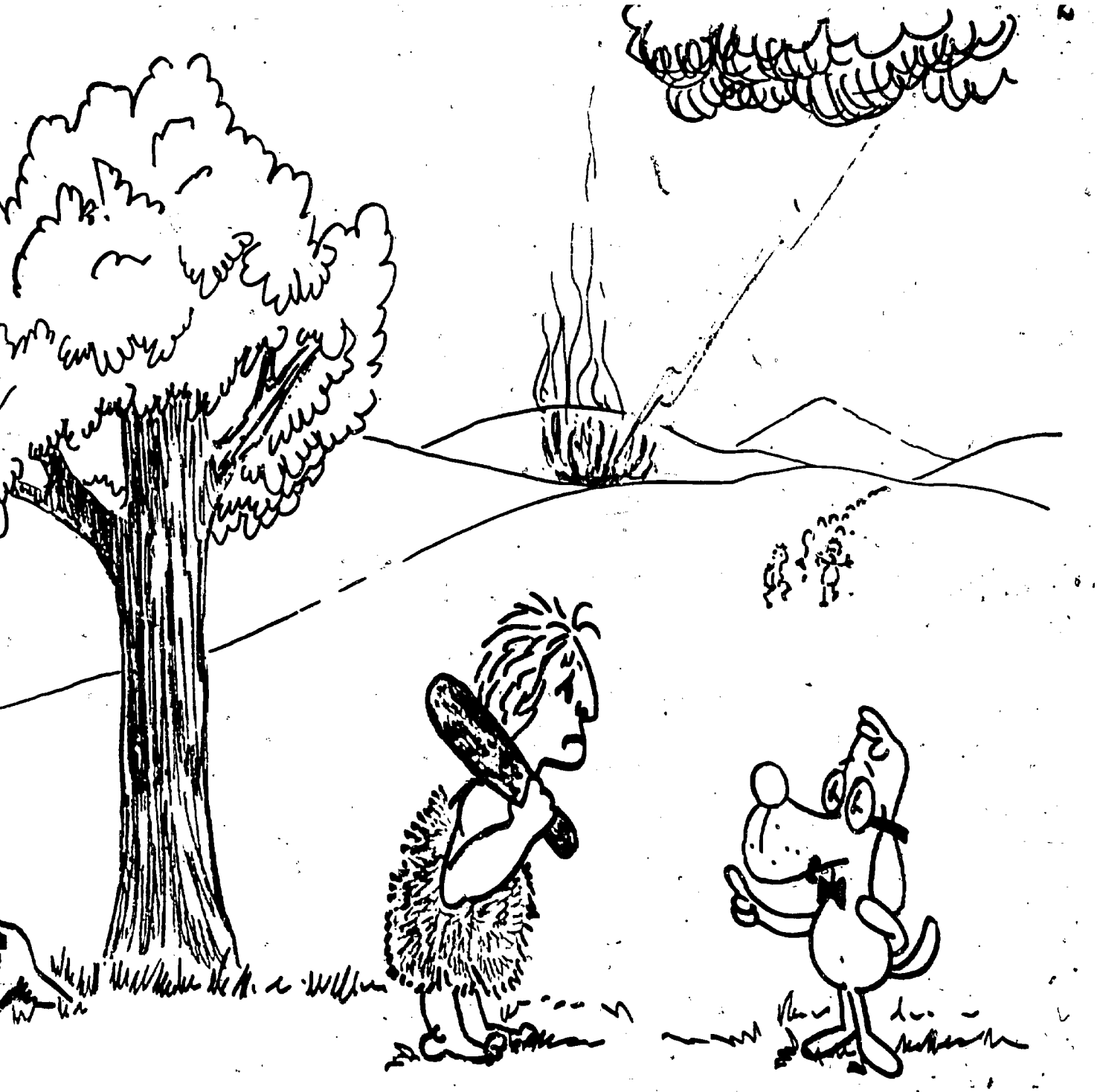
FRAME 7

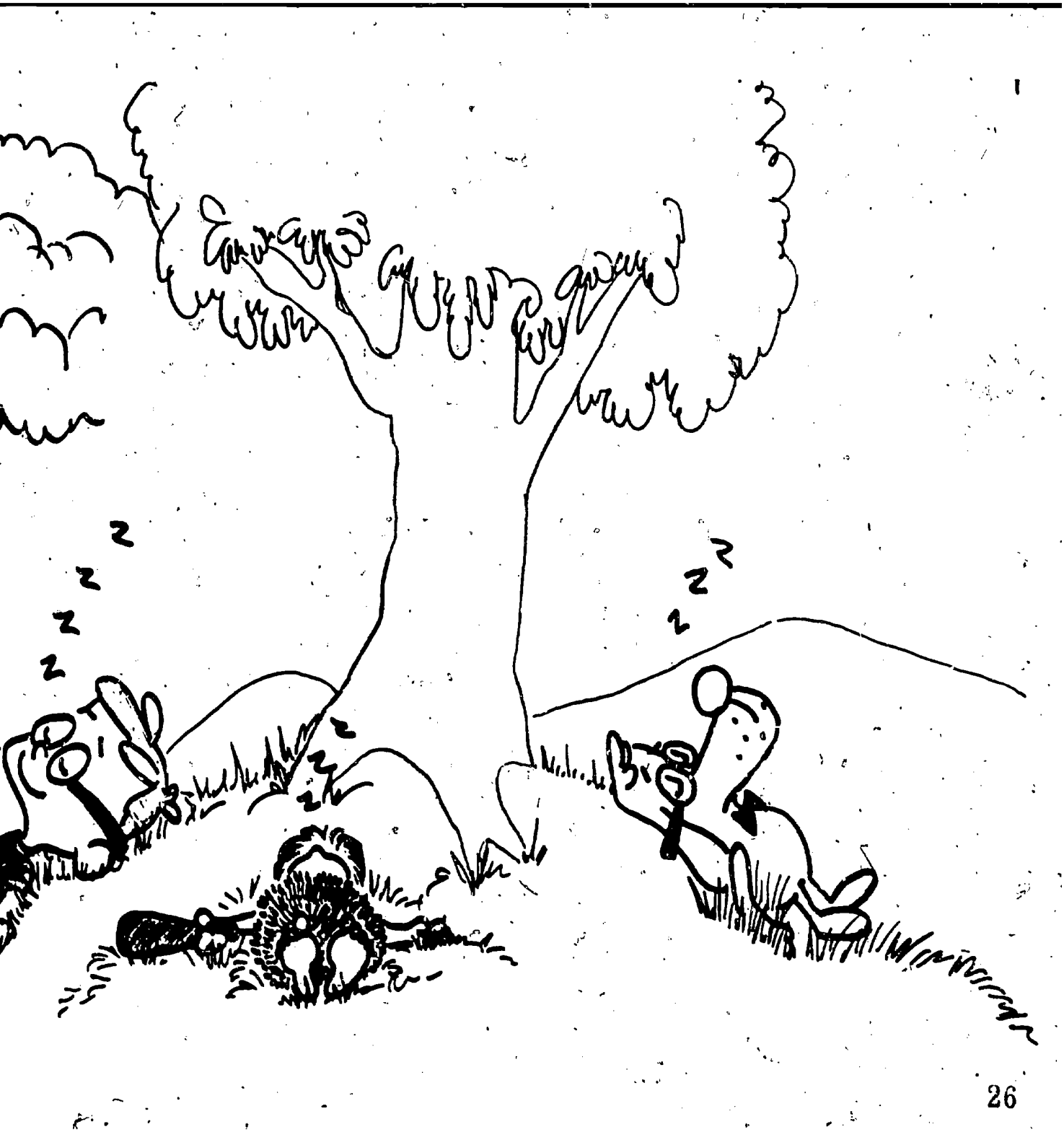
Being so amazed with the new discovery our early man rushed down the hill to show his friends.

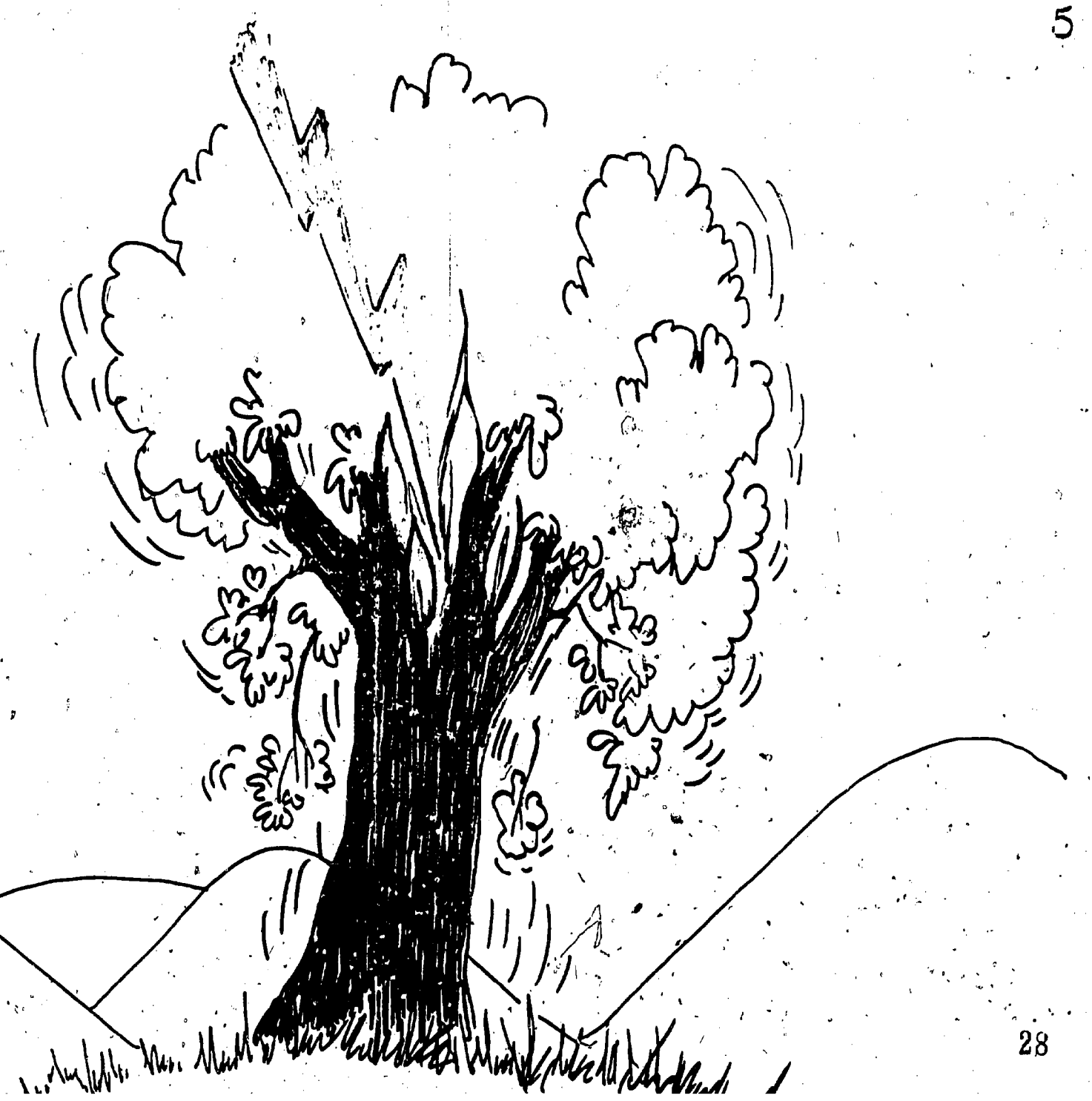
"There", Peabody said proudly, "is how fire was discovered." "But couldn't he have waited until morning to tell his friends?" asked Sherman. "No," replied Peabody. "Haven't you ever heard the expression, 'It's going to be a hot time in the old town tonight.'"

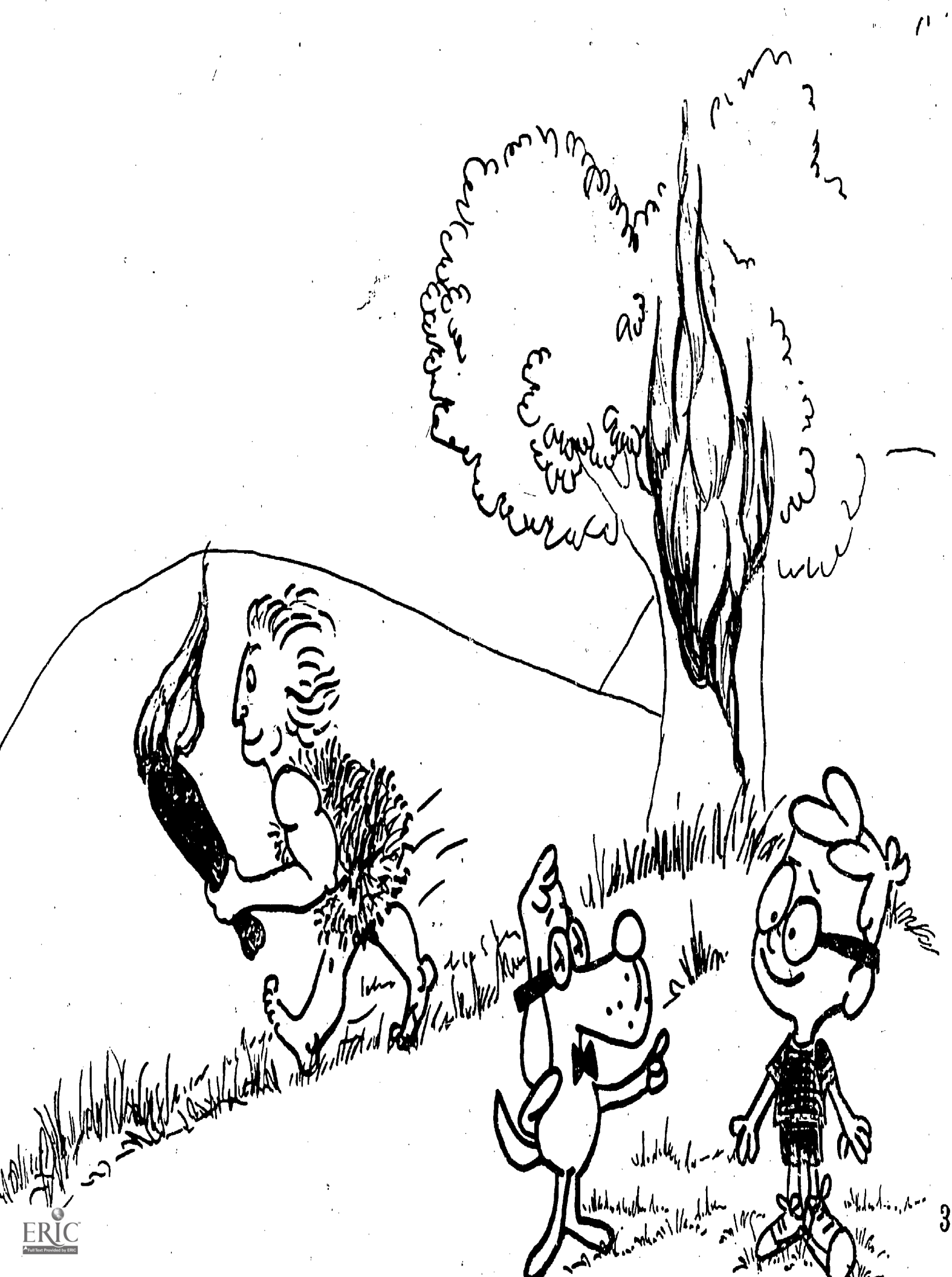
THE END


Past Future
PEABODY'S
Time Machine
ENTER
CAUTION









DAY #1

ART

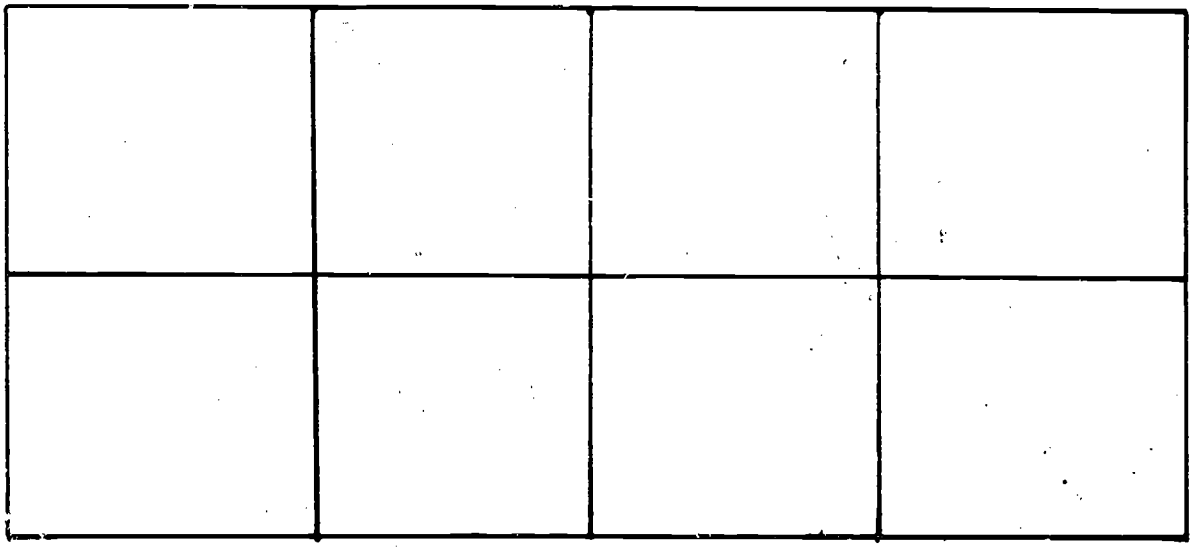
CONCEPT: Art is a way to express a thought.

MATERIAL: A piece of paper, the same as the kids
Large newsprint (14 x 18)
Crayons, pencils

INTRODUCTION: *For art today we will be making a cartoon. What does a cartoon tell?*
A cartoon tells a story.

For art you will be making a cartoon telling a story of how man invented something that he is using now. What are some things that you could draw about that have something to do with the environment?
We could draw about airplane, can, car, garbage, pollution, smog.

Use a ruler and measure your paper into eight sections. It should look like this (on board). *You may use your favorite cartoon characters.*



DAY #2

MATH

CONCEPT: We should use our materials carefully and recycle all we can.

MATERIAL: Paper and pencil

KEY INFO FOR THE TEACHER: The price of recycled newsprint.

Winter 1974	newspaper	@	$25/ton
Summer 1974		@	$60/ton
Fall 1974		@	$ 6/ton

INTRODUCTION: *What product is used most in the schools?*
paper (62% of waste)

What happens to the paper after it is used?
It is thrown away or burned.

Instead of tossing away what can be done?
The paper can be recycled.

What does "recycle" mean?
To use again

Do you know the type of paper most often recycled?
Newspaper

Can anyone guess how much newsprint sold for in the winter of 1974? (write guesses on board)
$60 - *No, less*
$45 - *Less*
$20 - *Higher*
$25 - *Yes*

How about the summer of 1974?
$25 - *No, higher*
$50 - *No, higher*
$90 - *lower*
$60 - *right*

From these two prices, can you figure what the price is paid in the fall of 1974.
$65 - *too high*
$50 - *lower*
$25 - *much lower*
$7 - *yes*

Why did the price go down? Isn't newsprint still being recycled?
The price went down because too many people were selling the paper and not enough were buying it. (Capacity of mills to handle.)

By the way, how many pounds in a ton?
2,000 pounds

Now, let's figure out how much the class weighs and what you are worth if you were newsprint.

PROCEDURE: *What are some ways to figure out the class weight?*
We could take an average. We also could add each student's weight.

(For the teacher: there are two methods, one more reliable than the other.)

METHOD I (most reliable)
(25 in the class)

1. Select 5 people.
2. Have them tell you their weight and write on the board.
3. Class finds total
4. Add this 5 times (or multiply if able)
5. Answer is total lbs. in class.

METHOD II

1. Each student tells you their weight and you write it on the board.
2. Class add numbers to find total.

(This probably will not work. Too many figures.)

Find the price of paper per pound. This is done by dividing pounds into dollars.

Fall 1974 — $2000/\$7.00 = \$.0035$

Summer 1974 — $2000/\$60.00 = \$.03$

Winter 1974 — $2000/\$25.00 = \$.0125$

Now multiply the class weight by each of the above answers. (Ask the class for answers. After two or three, work it out on the board.)

This is how much you are worth. How many got all three correct? How many got two correct? How many got one correct?

You may keep these papers or throw them into the collection box.

DAY #2

READING

CONCEPT: Through reading we can learn about energy and its production. The student will be aware of 4 energy sources.

MATERIAL: Ditto of questionnaire
Ditto of reading material

INTRODUCTION: *How do we learn? Remember from yesterday's reading?*
People show us how to do thing.

What sense do we use for that?
Sight

Good, another way?
By hearing

In order to hear someone has to do what?
Be talking

OK. One other way. It involves only one person and that is you. It has to do with seeing.
Reading

Super. I am taking a survey to see how much people know about energy and its sources. Will you please fill it out the best you can. Nothing will count against you. When you have finished, draw a green line under your last answer in each group.

Please pass out the surveys. (allow 5 min.) *The teacher is not to give answers or help. Remember, this is a survey.*

- - - - - - - - - - -

Now that you have completed the form the best you can, please read the article you will receive. After reading, finish those parts you did not know before. (Allow 15-20 minutes) *Draw a blue line under your answers and add the rest of the correct answers as we check the survey. We will now correct and check the survey.* (Teacher may use key. The answers need not be exact, merely similar). Collect the survey to see how much was learned.

Why am I collecting the survey?
To see how much we know.

Yes, but why did I have you draw a green and blue line?
To see what was learned by reading.

Good. How many of you improved your answers after reading the article? Good for you.

SURVEY

NAME _____

Energy and its Resources

What are the energy sources used most in the U.S.

1. 3.
2. 4.

In the future, what energy sources might be used?

1. 3.
2. 4.

What is the major source of power in the Northwest?

1.

If water is used, why is it so good?

1.
2.

Methods of Generation

Name two fossil fuels.

1.
2.

How is a fossil fuel made?

This country has one fossil fuel that will last hundreds of years before we run out. What is it?

What are disadvantages to using coal?

1.
2.

How is coal mined?

1.
2.

In the future, what will be the main source for energy?

1.
2.
3.

SURVEY KEY NAME _____

Energy and its Resources

What are the energy sources used most in the U.S.
1. coal
2. oil
3. gas
4. water

In the future, what energy sources might be used?
1. solar
2. geothermal
3. garbage
4. wind

What is the major source of power in the Northwest?
1. water

If water is used, why is it so good?
1. renewable
2. no pollution

Methods of Generation

Name two fossil fuels.
1. coal
2. oil

How is a fossil fuel made?
Plants that died millions of years ago under tons of pressure and a lot of heat.

This country has one fossil fuel that will last hundreds of years before we run out. What is it?

coal

What are disadvantages to using coal?
1. it produces air pollution
2. it has to be mined

How is coal mined?
1. strip
2. open pit

In the future, what will be the main source for energy?
1. fossil fuel
2. nuclear fuel
3. hydro electric

ENERGY AND ITS SOURCES

Energy sources used most for generation of electricity in the U.S. are coal, oil, gas, and falling water. Nuclear fuel is rapidly joining the more traditional sources of energy and by the end of the century will likely satisfy over half our nation's electrical needs.

There are many sources of energy. One source that is naturally available is the sun. Sun power varies because of weather changes. It is also very costly because of expensive equipment.

Another source that may be used in the future is wind power. This would mean building huge windmills to power electrical generators.

So far it seems that for the next 40 years oil, coal and nuclear fuel will be the main source of energy for producing low cost electricity.

What is the major source of power in the Northwest? That's right, it is water. Water is good for two very important reasons. One, it is renewable, and two, it produces no pollution.

METHODS OF GENERATION

There are two common methods of generation, fossil fuel and hydro plants. Nuclear fuel plants will soon be a major source of energy.

A fossil fuel is made from plants that died millions of years ago. Under tons of pressure and a lot of heat, coal or oil was made. Fossil fuel is coal or oil.

Because this country has so much coal, enough for 800 years more, coal fired generating plants will be built.

There are some disadvantages to using this mineral. One is that coal produces air pollution. It fills the air with soot and other materials. Another disadvantage is that coal is mined. There are two ways this is done. One way is to strip a vein of coal underground. The other way is by digging an "open pit" mine. The "open pit" mine is a huge hole in the ground which may be several miles across. This method is used when the coal is near the surface.

A different method used may be the recycling of garbage to produce electricity. The garbage would be burned, just like coal, to make steam to power a generator. This plant would use garbage instead of coal.

In some places of the world underground water comes to the surface as steam, just like the gyser "Old Faithful". The steam is piped to homes to heat them. The steam may also power generators.

This form of heat is called "geothermal". "Geo" means ground. "Thermal" means heat. This word means heat from the ground.

Right now the use of solar cells, or sun power does not look good. This is because they do not produce enough power for the cost and equipment needed. Perhaps in the future we will see solar power.

Until man knows more about energy and how to produce it, fossil fuels, nuclear fuel, and hydro electric plants will be the main power source for the next years.

FROM: Power Generation Alternatives
Engineering Division
Seattle City Light, Seattle
Cone-Heiden Corp., 1972

DAY #2

SPELLING

CONCEPT: There is a specific jargon needed to understand the topic of ecology.

MATERIAL: Ditto of puzzle (try to ditto on both sides to save paper.)

INTRODUCTION: *Remember yesterday we talked about environmental vocabulary? Do you recall what that word is?*

Jargon

OK. Now, what were some of the words?

Some of the words were environment, ecology, community, recycle, smog, pollution, conservation, rationed, energy

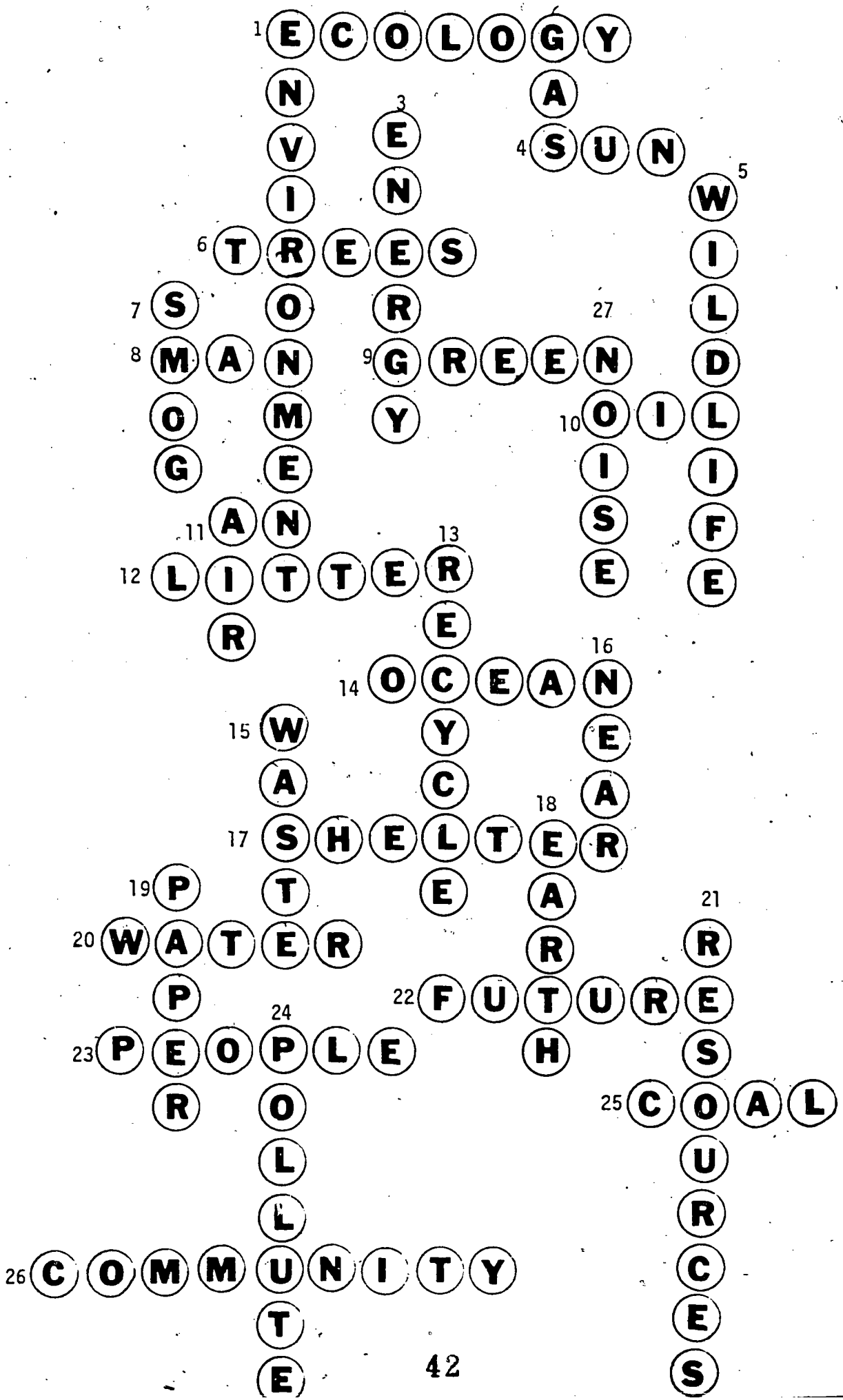
Good. I'm glad you remember the words. I have a crossword puzzle for the spelling assignment. Why are the clues on the back?

To save paper.

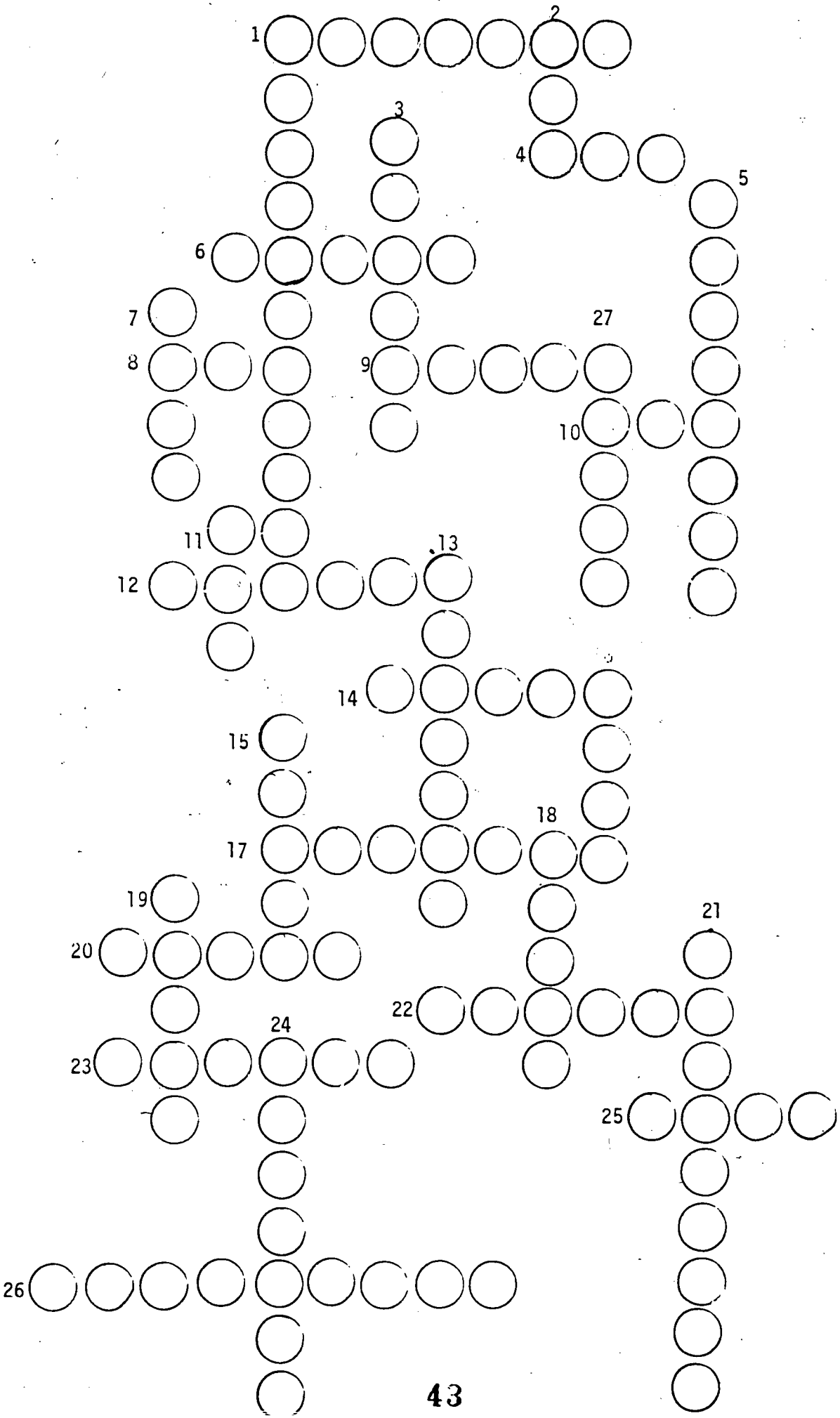
Fine. If you have any questions, raise your hand.

If you feel the class cannot handle this, write the answers on the board in a mixed order.

ECO PUZZLE


1 ECOLOGY
NVIRONMENT
3
4 SUN
5 WILDLIFE
6 TREES
7 SOMOG
8 MAN
9 GREEN
27 NOISE
10 OIL
11 ANTLER
12 LITTER
13 RECYCLE
14 OCEAN
16 NEAR
15 WASTE
17 SHELTER
18
19 PEOPLE
20 WATER
21 RESOURCES
22 FUTURE
23 PEOPLE
24 POLLUTE
25 COAL
26 COMMUNITY

ECO PUZZLE



ECO-PUZZLE

ACROSS

1. The study of our environment
4. The primary source of energy
6. From which we get paper
8. Another word for humans
9. The color of living plants
10. _____ spills destroy beach life
11. _____ article of (part of speech)
12. Garbage
14. A large body of water
17. Home; protect
20. 3/4 of the planet is covered with _____
22. We must plan for the _____
23. Men and women are _____
25. A black, burnable mineral
26. Neighborhood; where you live

DOWN

1. We must save the _____
2. What cars need
3. The primary source of _____ is the sun.
5. We must protect the forest _____ (animals)
7. Fog made of smoke
11. We breathe _____
13. To use again
15. Litter, refuse
16. Not far
18. A planet
19. Use to write on
21. We must use our natural _____ sparingly
24. Give a hoot, don't _____
27. A loud sound

DAY #2

LANGUAGE ARTS

CONCEPT: Through letter writing, the student can become aware of organizations that deal with improvement of our environment.

MATERIALS: Stamps, envelopes, paper
A ditto of addresses
transparency showing correct business form

INTRODUCTION: *How do we communicate with people?*
We communicate by telephone, radio, TV, papers, letters (write on board)

If you want information about something, how do you get it?
By telephone or by letter writing.

If you don't want to make a call, which would you use?
Letter writing. *Excellent.*

We are going to have a contest. Today we are going to write letters. The first person to receive a letter is the winner. Since we have been working on pollution and ecology, who do you think the letters will go to.
We can write to recycling centers, government offices, maybe even the mayor or governor.

Since we are going to write for information about pollution, should we ask for any old information or should we be specific?
We should be specific.

OK. What types of pollution should we ask about?
(Write on board)
air pollution
water pollution

There are some other areas: What happe when a jet flys by? It is loud. It is?
noise pollution

What do we use with all the glass and paper that is used?
recycling information

How about should a company wish to build a housing project or do some mining? Where do they build?
On the land.

OK. Land usage is another topic. The minerals that a company mines are considered what type of materials.
raw materials

Fine. These are some ideas. Do you have any other suggestions?

(Pass out several address dittoes)

When you receive the address sheet, copy down an address and pass it on to the next person.

Use the example on the overhead to help you use the proper form.

Make one letter, then have me correct it right away. Once corrected, write a second and super neat copy to be sent. Once this is done, get an envelope and address it. Remember, the sooner the letter is sent, the sooner you will receive mail.

Air Pollution Control Association
4400 Fifth Ave.
Pittsburgh, PA 15213

American Conservation Association
30 Rockefeller Plaza
New York, N.Y. 10020

Boy Scouts of America
National Council
North Brunswick, N.J. 08902

Camp Fire Girls, Inc.
1740 Broadway
New York, N.Y. 10019

Citizens for Clean Air
502 Park Ave.
New York, N.Y. 10022

Conservation Education Association
c/o Dr. W. F. Clark
Eastern Montana College
Billings, Montana 59101

Desert Protective Council
P. O. Box 33
Banning, CA 92220

Environmental Action Foundation, Inc.
732 Dupont Circle Bldg.
Connecticut Ave., N. W.
Washington, D.C. 20036

Environmental Action, Inc.
Room 731, 1346 Connecticut Ave., N.W.
Washington, D.C. 20036

Friends of the Earth
620 C St. S. E.
Washington, D.C. 20003

Girl Scouts of the United States
of America
830 Third Ave.
New York, N.Y. 10022

Keep America Beautiful
99 Park Ave.
New York, N.Y. 10016

Lake Erie Cleanup Committee, Inc.
3003 Eleventh St.
Monroe, Michigan 48161

Lake Michigan Federation
53 W. Jackson Blvd.
Chicago, Illinois 60604

National Audubon Society
950 Third Ave.
New York, N.Y. 10022

National Coal Association
1130 Seventeenth St. N.W.
Washington, D.C. 20036

National Parks and Conservation Association
1701 Eighteenth St. N. W.
Washington, D.C. 20009

National Tuberculosis and Respiratory
Disease Association
1740 Broadway
New York, N.Y. 10019

Sierra Club
1050 Mills Tower
220 Bush St.
San Francisco, CA 94104

The National Wildlife Federation
1412 Sixteenth St., N. W.
Washington, D.C. 20036

The Wilderness Society
729 Fifteenth St., N. W.
Washington, D.C. 20005

Water Pollution Control Federation
3900 Wisconsin Ave., N. W.
Washington, D.C. 20016

Wildlife Management Institute
709 Wire Building, N. W.
Washington, D.C. 20005

Environmental Protection Agency
Region X
1200 Sixth Avenue
Seattle, WA 98101

Department of Ecology
Northwest Regional Office
15435 N. E. 36th
Redmond, WA 98052

Washington State Department of Natural
Resources
Public Lands Building
Olympia, WA 98504

Washington State Department of Fisheries
115 General Administration Bldg.
Olympia, WA 98504

Department of Game
Region #7
509 Fairview Avenue North
Seattle, Wa 98109

Concern, Inc.
2233 Wisconsin Ave., N. W.
Washington, D.C. 20007

Scientists' Institute for Public Infor.
30 East 68th Street
New York, New York 10021

Ecology Action
P. O. Box 9334
Berkley, CA 94709

Seattle Audubon Society
712 Joshua Green Bldg.
Seattle, WA 98101

United Air Lines
White-Henry-Stuart Bldg.
Seattle, WA 98101

Sierra Club
4534½ University Way N. E.
Seattle, WA 98105

Washington Environmental Council
119 South Main Street
Seattle, WA 98104

Northwest Air Pollution Authority
207 Pioneer Building
2nd and Pine
Mount Vernon, WA 98273

Puget Sound Air Pollution Control Agency
410 West Harrison
Seattle, WA 98119

PAPER

Independent Paper Stock Co.
66 South Hanford
Seattle, WA

Seattle Disposal Co.
3400 Phinney North
Seattle, WA

RECYCLING CENTERS

ALUMINUM

K & L Beverage Company
300 - 120th Ave. N. E.
Bellevue, WA

Quality Brands
1204 Railroad Avenue
Bellingham, WA 98225

City Beverages
725 Saar Street
Kent, WA 98031

Rainier Brewing Co.
3100 Airport Way South
Seattle, WA

Sunset Dist. Co.
4912 14th N. W.
Seattle, WA

North End Dist. Co.
1137 N. 96th Street
Seattle

Sid Eland, Inc.
11022 E. Marginal Way So.
Seattle

GLASS

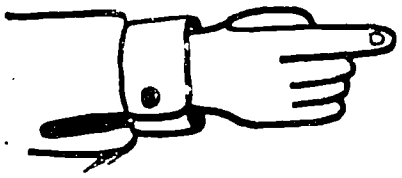
Northwestern Glass Co.
Div. of Indian Head, Inc.
5801 E. Marginal Way So.
Seattle, WA

STEEL

American
2601 Elliot Ave.
Seattle, WA

Continental
615 S. Orchard St.
Seattle, WA

Bethlehem
S. W. Andover & 26th Ave. S. W.
Seattle, WA



Your address
City, State
Date

Northwestern Glass Co.
Div. of Indian Head, Inc.
5801 Ea. Marginal Way S.
Seattle, Wa. ZIP

To whom the letter is sent

Dear Sir:

Remaining,
Joe College

DAY #2

SOCIAL STUDIES and ART

CONCEPT: When building man must take into consideration the following aspects. (1) land usage (2) water (3) air (4) noise (5) raw materials (6) pollution

MATERIALS: Newsprint
Pencils
Crayons

INTRODUCTION: *Please listen as I read this short paragraph.*
The environment must be considered when building generation plants. Things to look for are the use of the land, it's beauty, what it will do to recreation or wildlife, local air and water pollution, and how it affects people and their surroundings. All of these must be considered if one is to build any form of generation plant.

What things should be considered when building a generation plant?
How the land is used.

What do you mean?
So they don't waste space. They should use as little land as possible. The land should not be destroyed.

What about recreation or wildlife for instance, if a dam is built?
The animal should be moved if possible. The flooding may destroy huge areas of park lands. Yet the lake formed may be beneficial.

Would the location of a power plant affect the people? How?
You wouldn't want to live right next to it. There would be too much noise and traffic.

Where would you place such a plant? In a residential district?
No. Either in the city where the industry is, or in the country away from everyone.

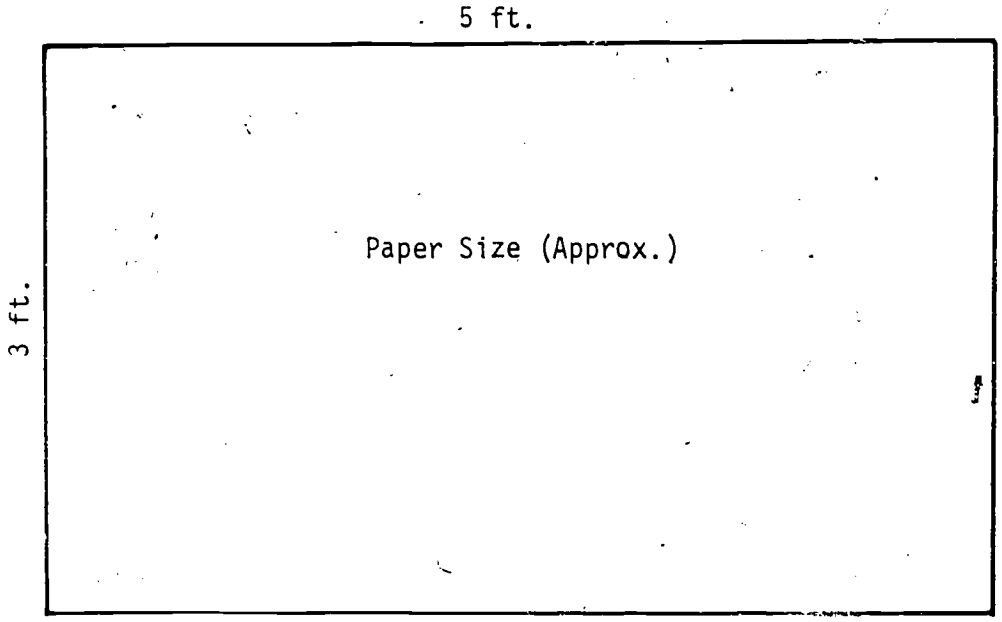
By now everyone has an idea of what to consider when building a generation plant. What are other things you have in the community? An example would be the school.
(Have students write on the board.)
We have the airport
Fine. What do we drive on?
roads
Where do we live?
houses
Where does the power come from?
generation plant
(Some other answers - the more ideas the better)
hospital, garbage dump, shopping center, industry, farming, train, park, airport

CONCEPT: We have a say to what happens in our environment

(After 15 ideas give the following instructions)

We now have a list of various things in the community that we all need. With what you now know about planning, you will design your own ideal community or town. Each student will receive a large piece of paper. You will then get together in groups of 5 and plan a community. You may also color the design. When you have finished, each group will present their illustration to the class.

(Give the class about half an hour)



DAY #3

MATH

CONCEPT: Man must work together to save our natural resources.

MATERIAL: Overhead
Transparencies
Pen for overhead

INTRODUCTION: *What are the main methods of transportation?*
Some methods of transportation are train, car, bus, airplane, ferry

Which of these do you think will be covered today? It's the one used the most.
The car.

Good. Today all you will need for math is a pencil and paper. First, let us see how many moving vehicles each family has.

What is a moving vehicle?
What do you think it is?
Is it like a car?
Yes, what else would be considered a moving vehicle?
a bus or truck

(Frame 1) Using this criteria point to illustrations on overlay.

Let us see how many moving vehicles your families own. (Ask students to tell you. Write the responses on the board).

Now that we have these numbers, let's find the total. (students find total)

How can we find the number of cars per student?
Divide the number of students into the number of cars.
What was the answer? (Teacher also does the work.)

We have two cars. One gets 18 miles per gallon, the other 25 miles/gallon. Both have 15 gallon gas tanks. How far can each travel? What is the difference?

18	25	
x15	x15	375 miles
90	125	-270 miles
18	25	105 miles difference
270 miles	375 miles	

How can we save petrol?
One way is not to use the car so much.
Good. How about if you and a friend are going to the same place?
We can share rides.
Another way to say "sharing rides" is
Car pool

On your paper write down as many pool type words as you can. An example is the car pool. (Allow 1 minute) *What did you come up with?*

swimming pool
pool table

Show transparency - Frame II

How can these people use their gas more wisely?

They can share rides

Which people will benefit from this?

Jim and Suzanne

What is the shortest distance each can travel to get to work?

Suzanne - 3 miles
Jim - 3 miles
Brian - 5 miles

What is the longest way to get to work?

Suzanne - 9 miles
Brian - 7 miles
Jim - 9 miles

Which person would it be best for Brian to share a ride with?

Jim

Why?

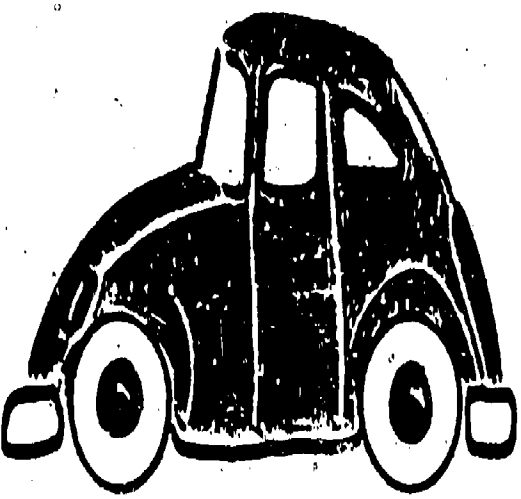
Going past Jim's home is only 5 miles. Going past Suzanne's home is 7 miles.

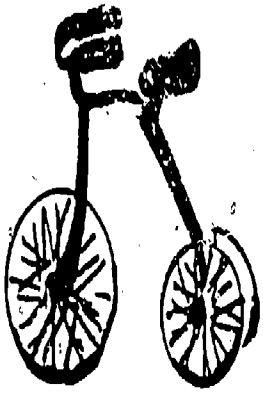
How can they save gas?

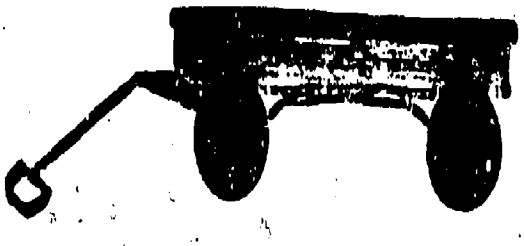
By car pooling

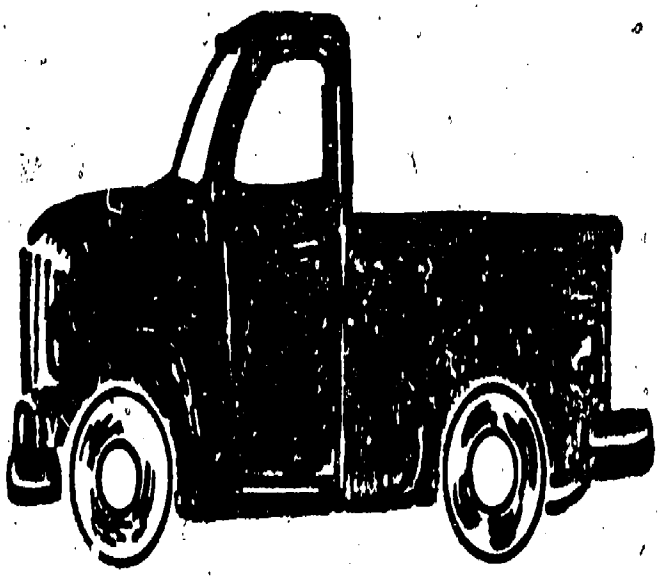
Fine. What could be another means of transportation?

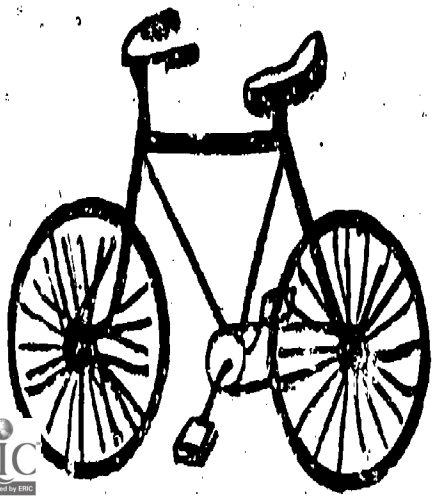
They could ride the bus.

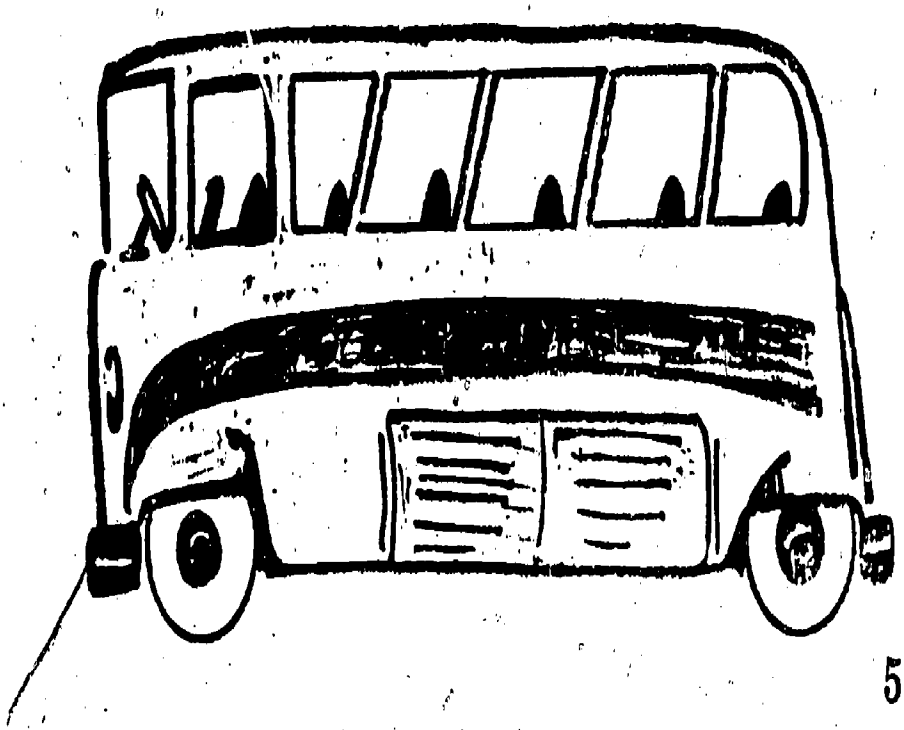


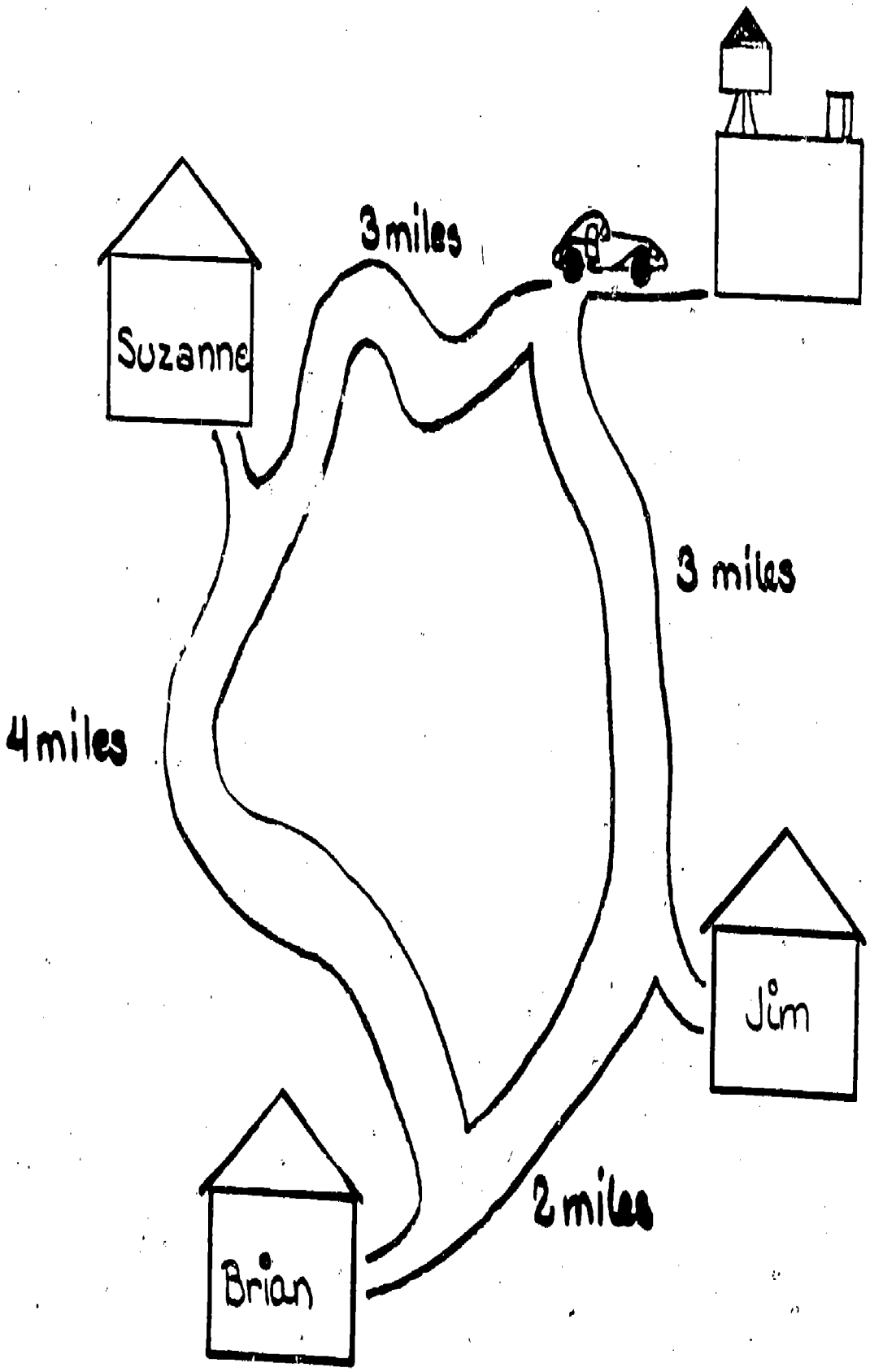











3 miles
Suzanne
3 miles
4 miles
Jim
2 miles
Brian

DAY #3

READING

CONCEPT: We must be aware of our past.

MATERIAL: Ditto

INTRODUCTION: *Do you remember from your reading two days ago how man got food?*
Man would gather food.

What do you think the next step is in his development?
He may have become a farmer?

That's right. And what about the animals? Did he still follow them?

For reading we will learn some more about man's past and how he developed. There are questions to be answered on the back. Do your best. We will correct the work in class.

MAN, THE TAMER OF ANIMALS

Because of the development of agriculture, the human population grew. Agriculture brought more food. Fewer people starved. The area around the grain fields was not good for wild animals, however. Many of them left. When they did, the hunters lost much of their food supply. As time passed, the hunters found fewer and fewer animals. This was very hard for the hunters. They had always needed great skill. Now they needed even more skill if they wanted to eat meat.

Some men chose to remain hunters anyway. They followed the animals into different regions. Agriculture was still mostly "women's work", but some men began to share in it. Certainly it was a safer and surer way to get food than hunting. Still other men began to catch some of the wild animals that had stayed behind. Instead of killing them, they tamed them and kept them in a herd. Keeping a small herd of goats or cattle meant that they could be sure to have meat close at hand.

The herders watched the tame goats and cattle feed their young with milk. They thought, "Why don't we milk the goats and cattle for our own food? Why don't we use the sheep's fuzzy skin for our clothing?" Over the centuries, thoughts like these led many men to become herders. Keeping herds was another way for man to gain more control over the physical environment.

HERDERS AND FARMERS

What was it like to live in northern Mesopotamia about 4000 B.C.? We don't know many details. We do know that some men and women were living in villages. They were mainly food producers. Probably they kept a few animals, too. Other men and women lived outside the villages. They kept herds. They did not stay in any one place long enough to farm. These herders kept moving back and forth to find food and water for their animals. In the summer they moved to the hills. In the winter they returned to the low grasslands.

Herding became more important in the grasslands areas. There, the tough grass roots made digging hard for the farmers. In the other areas, the soil could be dug up easily. There, farming became more important. In northern Mesopotamia, herding

and farming had become the two important ways of life. The men who got all their food by hunting had almost disappeared from the region. They had followed the game animals into other regions.

The herders and farmers discovered that they could help each other. The herders could supply meat to the farmers. In their travels, they could also find things that the farmers could use. One of these things was stone for tools. In return, the farmers could supply grain to the herders. They could also supply them with grain stalks that were left over from the grain. The stalks were good for the animal herds to feed on.

The herders and farmers were not always friendly. Sometimes there was trouble between them. The herders might feel that they were the only ones who had the right to use a certain area of land. The farmers might feel the same way. When that happened, there was often a fight to decide who could use the land.

NAME _____

MAN, THE TAMER OF ANIMALS

HERDERS AND FARMERS

QUESTIONS

1. Why did the herders have to move when the seasons changed?

2. There were fights between herders and farmers in the American west. Tell what these fights were about.

3. Why did the farmers and herders exchange goods?

4. What was the livelihood of those people living in villages?

5. How did man learn to tame animals?

6. Did man always herd animals for food? _____ Could he have used the animals for another purpose? If so, how would he make use of the animals?

7. What do you suppose are some products of a herding society?

   of a farming society?

KEY

NAME _____

MAN, THE TAMER OF ANIMALS

HERDERS AND FARMERS

QUESTIONS

1. Why did the herders have to move when the seasons changed?

   As winter came the grasses would die. They had to follow where the food was for the cattle.

2. There were fights between herders and farmers in the American west. Tell what these fights were about.

   The farmers fenced the land. The herders wanted the cattle to roam free.

3. Why did the farmers and herders exchange goods?

   They traded meat for grain stalks.

4. What was the livelihood of those people living in villages?

   food producers

5. How did man learn to tame animals?

   He may have caught them and then fed them. They always had food that way.

6. Did man always herd animals for food? No Could he have used the animals for another purpose? If so, how would he make use of the animals?

   He could ride the animals.
   He could use them to pull things.

7. What do you suppose are some products of a herding society?

   Meat, skins

of a farming society?

   Wheat, corn, vegetables

DAY #3

SPELLING

Spelling Test

MATERIAL: Word list from 1st day of spelling.

INTRODUCTION: *Because these words are new to you, you can have 15 minutes to study together. If the noise level gets too loud, we will stop and have the test right then. OK?*

You will need pencil and paper.

Procedure:
1) Give the word
2) Use in a sentence
3) Give word again

To correct: Exchange papers, and have the students spell the words. Write two times for each missed word. Then collect the papers to see how well the class did.

DAY #3

LANGUAGE ARTS

CONCEPT: If man is not cautious he may destroy many animals that are endangered.

MATERIALS: Ditto (on both sides)

INTRODUCTION: *As man builds highways and shopping centers, what happens to the land?*
It is destroyed or covered.

And what about the wildlife that lived there?
They move to another place.

Suppose there is no other place to go, then what?
The animals die.

What happens if man hunts only one type of wolf?
It will die off.

When a type of animal dies off, can it be brought back?
No.

What is the word for an animal or species that is no longer living?
Extinct.

I have a seek and find word hunt for endangered species. These are animals that are nearly extinct. Do your best.

After 25 minutes ask how many were able to find all thirty words.

FROM: Word Hunt, August 1974
Magazine Management Co., Inc.
Office of Public
575 Madison Ave
New York, 10022
Vol. 2, No. 5

ENDANGERED SPECIES

C K I T F O X E L G A E D L A B

D A F R N C T Y N M I C L T I L

U Y N C E T I H W B O B E T T U

G K C A B P M U H N G R I Y T E

O W R E D B B W D N G C F S E W

N E M S C A E O R E L B R A W H

G L A L L I R C G N G H I A N A

P R N T H D W D S B I S O N N L

R U A W H O O P I N G C R A N E

O C T R F S L E O U Y S C F R P

N T E R R E F C F L O W D E R E

G L E R A S E K W I L D A S S L

H P R A I R I E C H I C K E N I

O L Y U O M O R A N G U T A N C

R B U S T A R D E L L E Z A G A

N P E R E G R I N E F A L C O N

The gray whale, which had been considered virtually extinct, was removed from the list of endangered species in 1972. Hopefully, in years to come those listed below can also be saved from extinction.

1. Bald Eagle
2. Bison
3. Blue Whale
4. Bobwhite (Masked)
5. Bustard (Great Indian)
6. Canada (Goose, Aleutian)
7. Condor (California)
8. Crane (Japanese)
9. Curlew (Eskimo)
10. Dugong
11. Egret (Chinese)
12. Ferret (Black-Footed)
13. Gazelle (Slender-Horned)
14. Gorilla (Mountain)
15. Humpback (Whale)
16. Ibis (Japanese Crested)
17. Kit Fox
18. Manatee (West Indian)
19. Orangutan
20. Pelican (Brown)
21. Peregrine Falcon
22. Prairie Chicken
23. Pronghorn (Sonoran)
24. Red Wolf
25. Rhinoceros (Northern White and others)
26. Timber Wolf (Eastern)
27. Warbler (Bachman's and Kirtland's)
28. Whooping Crane
29. Wild Ass (Asiatic)
30. Woodpecker (Ivory-Billed)

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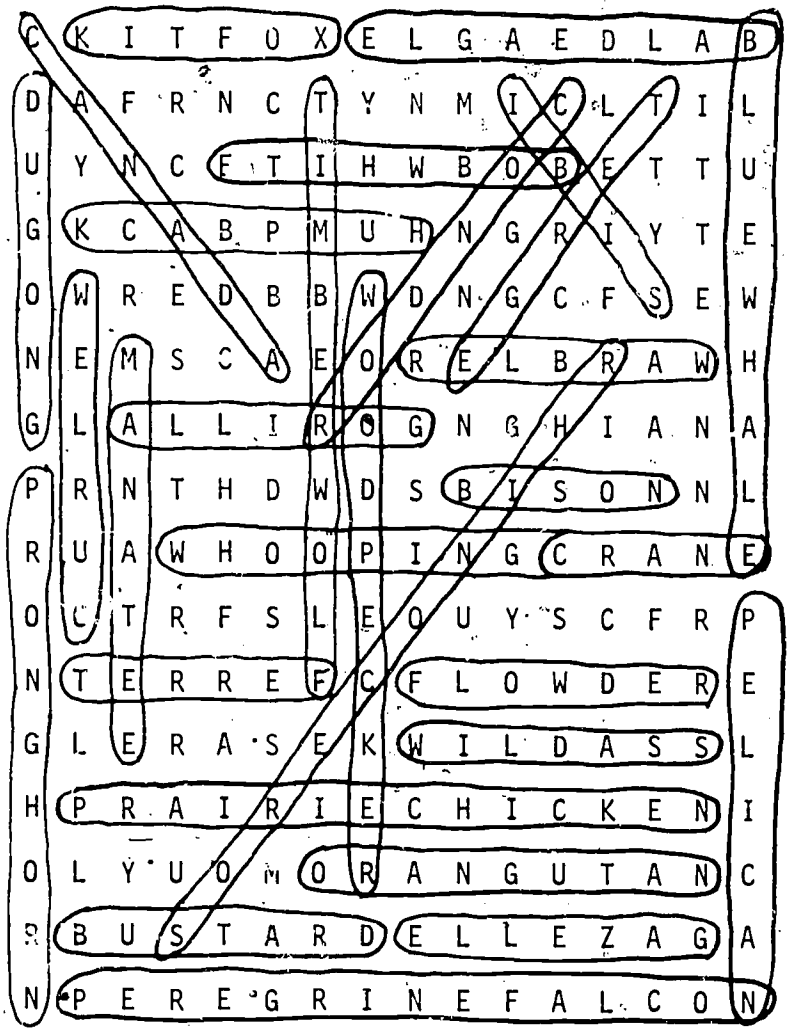
ENDANGERED SPECIES
(KEY)



DAY #3.

SOCIAL STUDIES

CONCEPT: Man must find a means for clear, economical mass rapid transportation.

MATERIAL:
Overhead
Transparencies
Pen for transparencies
Pencil
Paper

INTRODUCTION: *For social studies today we will be talking about man and transportation. I would like you to take out a piece of paper and a pencil. You are to write down as many means of transportation man uses today or has used in the past.*

What do you mean? I don't understand.

Who can give the class an example of transportation?

One might be the car.

Fine. What about the past?

Horseback

Super. When I say begin, you will have three minutes to write down your ideas. Ready - begin.

Time. Put your pencils down. Now, let's have some of your ideas. (Write the answers on the overhead).

airplane, cars, horse, train, boat, wagon, stagecoach, subway, monorail, bus, taxi, bicycle, tricycle, feet, motorcycle, ferry boat. (There are a few. The class may have many more).

Of these, which are suitable for mass rapid transit. First, we better decide what this means. What do you think it stands for?

This is a way to move many people quickly.

Alright. Will the move be over a long or short distance.

Both

You are right. Of the types of transportation we just listed, which would be considered mass rapid transit.

airplane, bus, train, subway, monorail, stagecoach
(cross off those not suitable)

Which of these will work when one wishes to travel short distances, as in a city or to and from work?

bus, train, subway, monorail

Why not the airplane?

It requires too much time to check in. It can't stop every other block It is designed to travel great distances.

And the stagecoach?

It is outdated. It is too slow, and may even be too messy.

How do you think mass rapid transit developed?

What do you mean?

How did man decide he needed a way to move thousands of people quickly?

Everybody went to work at the same time each morning. The roads became crowded. Somebody said there must be another way.

If a city doesn't have mass rapid transit, what can people do to save fuel?

They don't have to drive as much.

And if 3 people work in the same place and live near each other?

They can share rides.

Excellent. What other ways can one travel?

By bus or train.

Super.

I have a way I feel man developed mass rapid transit.

(Begin transparency presentation)

Frame 1: MAN AND TRANSPORTATION

Hundreds of years ago man felt a need to move about. He tried many ways. First he crawled, but this was slow. Besides, it always wore out his knees.

So he attempted to walk on his hands. Needless to say, this was a failure. (Show next Frame (2)) He kept bumping his head on stumps and things. After trying two of everything: two ears, two elbows, two fingers, low and behold! Man found the easiest way to move about, by using his feet.

Frame 3

This was fantastic. He was able to run faster and jump higher than the turtles. But he wasn't satisfied. He wanted to travel faster and farther. Ah ha. "I will catch a horse", said he. "It can run twice as fast as I, for the horse has twice as many legs."

Frame 4

Once on the horse, things moved quickly. There was the chariot, the wagon, the stagecoach. And then, the Iron Horse. This horse was fed wood or coal instead of hay. The steam locomotive was invented by a Richard Trevithich of England, about 1804, believe it or not. It was a major step towards mass rapid transportation.

Frame 5

Then came the great invention, made famous by the family Ford. The horseless carriage, the car, the auto. It could go anywhere, without tracks. At times even without roads.

Frame 6

However, it could only carry 2 or 4 people. Which means everyone had to have one. Somebody was smart, and had a good idea. They invented a way to carry many people in a horseless carriage. It was bigger than a car, but smaller than a train. What is it? A bus. Yep, and it didn't need tracks. It could go anywhere.

Frame 7

Boy, things began to move faster and faster. The brothers Wright invented an airplane. Soon modern highways were built. As the population grew, so did the number of cars on the road. People were tired of traveling to and from work bumper to bumper. So they called a town meeting. They said they wanted mass rapid transit. A way to move large groups of people over short distances quickly.

Frame 8

Unfortunately, the mayor was hard of hearing. He heard rabbit transit. Rabbits were saddled and carrots hung in front of them so they would move.

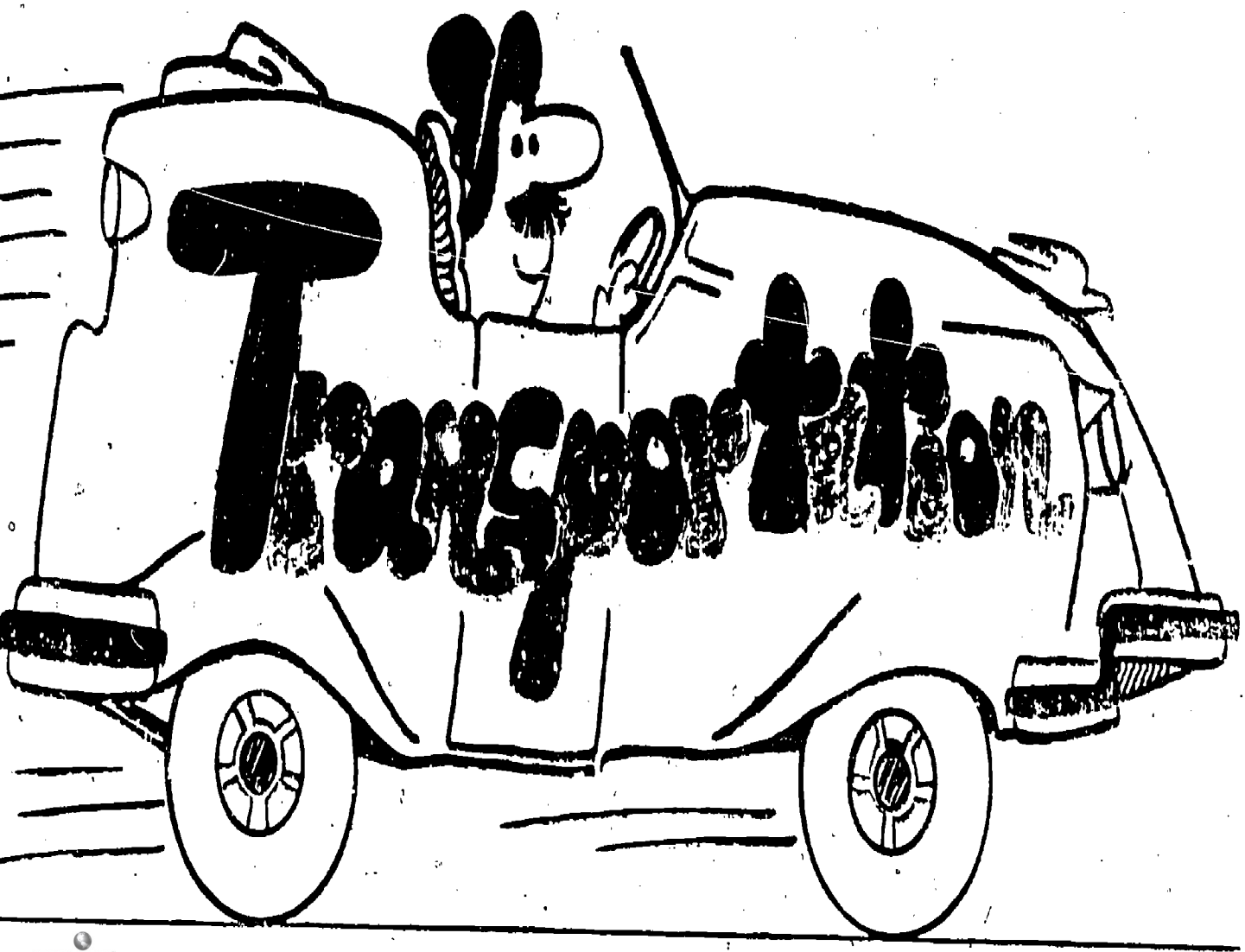
Frame 9

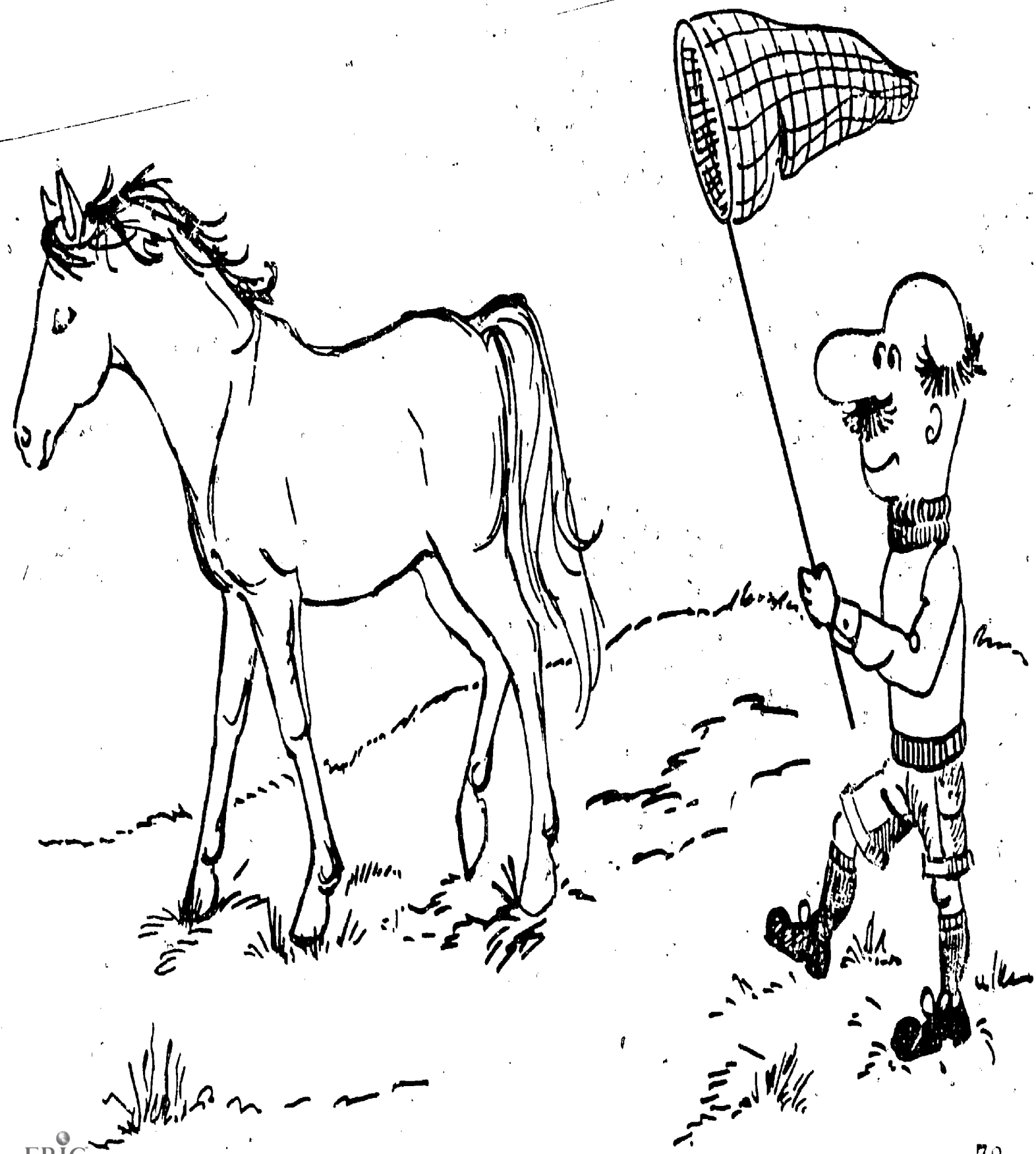
There was a disadvantage however. The rabbits left their pollution everywhere. Needless to say, the rabbits didn't work out. Another idea came from a radio station in Seattle. The mono-pail. This was a laundry line many miles long with buckets or pails hanging from it. It was called a mono-pail because this contraption carried one person at a time in each pail. (Frame 10) It didn't work. Would have carried thousands of people to work very slowly. Besides, it rains a lot in Seattle, and the buckets would fill with water.

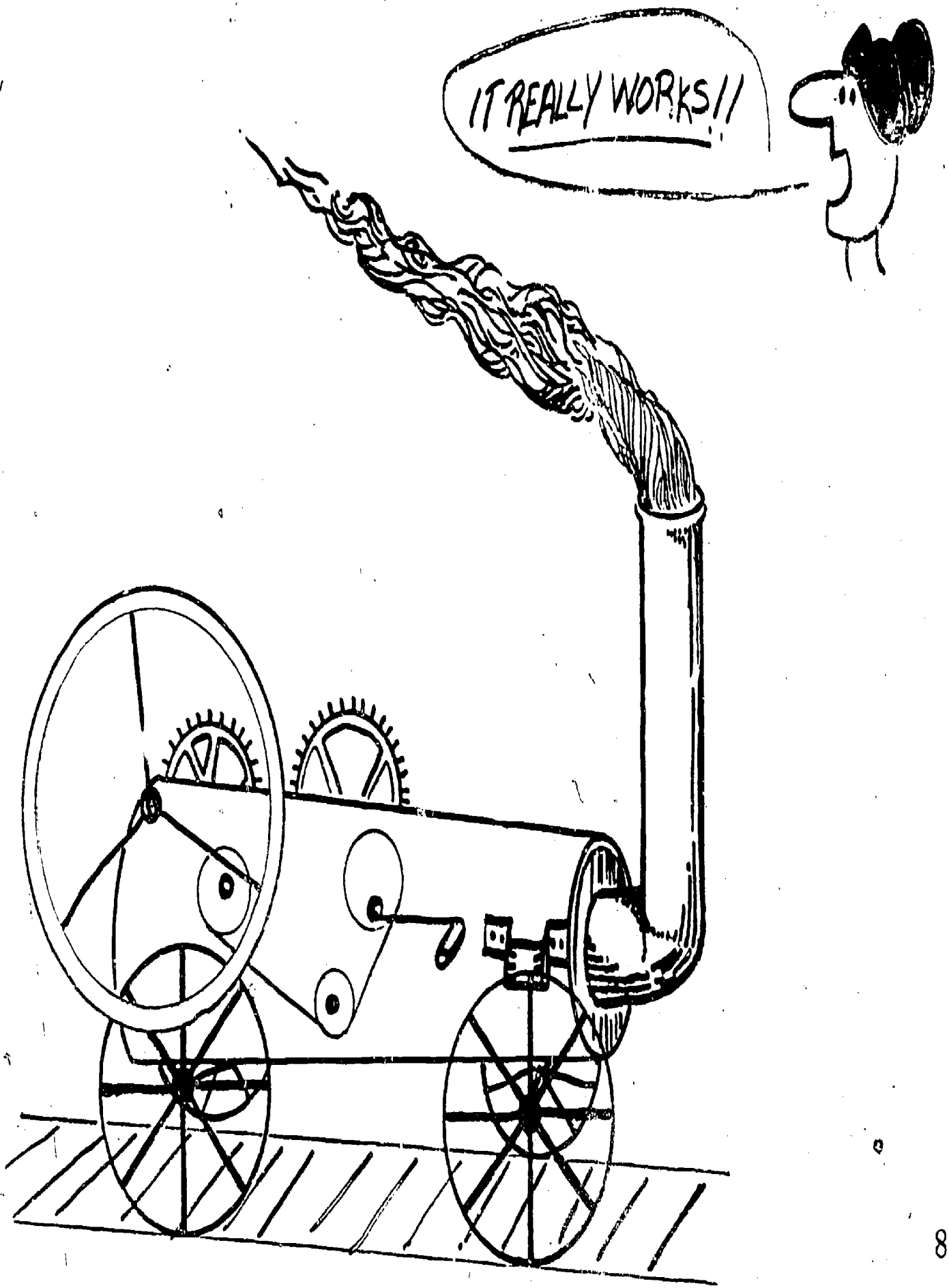
But hark, an idea! If we were to combine the train on the ground, and put the tracks above, like the mono-pail, we could go to and from work on a ?? What class??? Mono-rail. A one rail train. Hurrah (Frame 11) The people are happy. It provided clean transportation. It is fast, quiet, inexpensive, and fun.

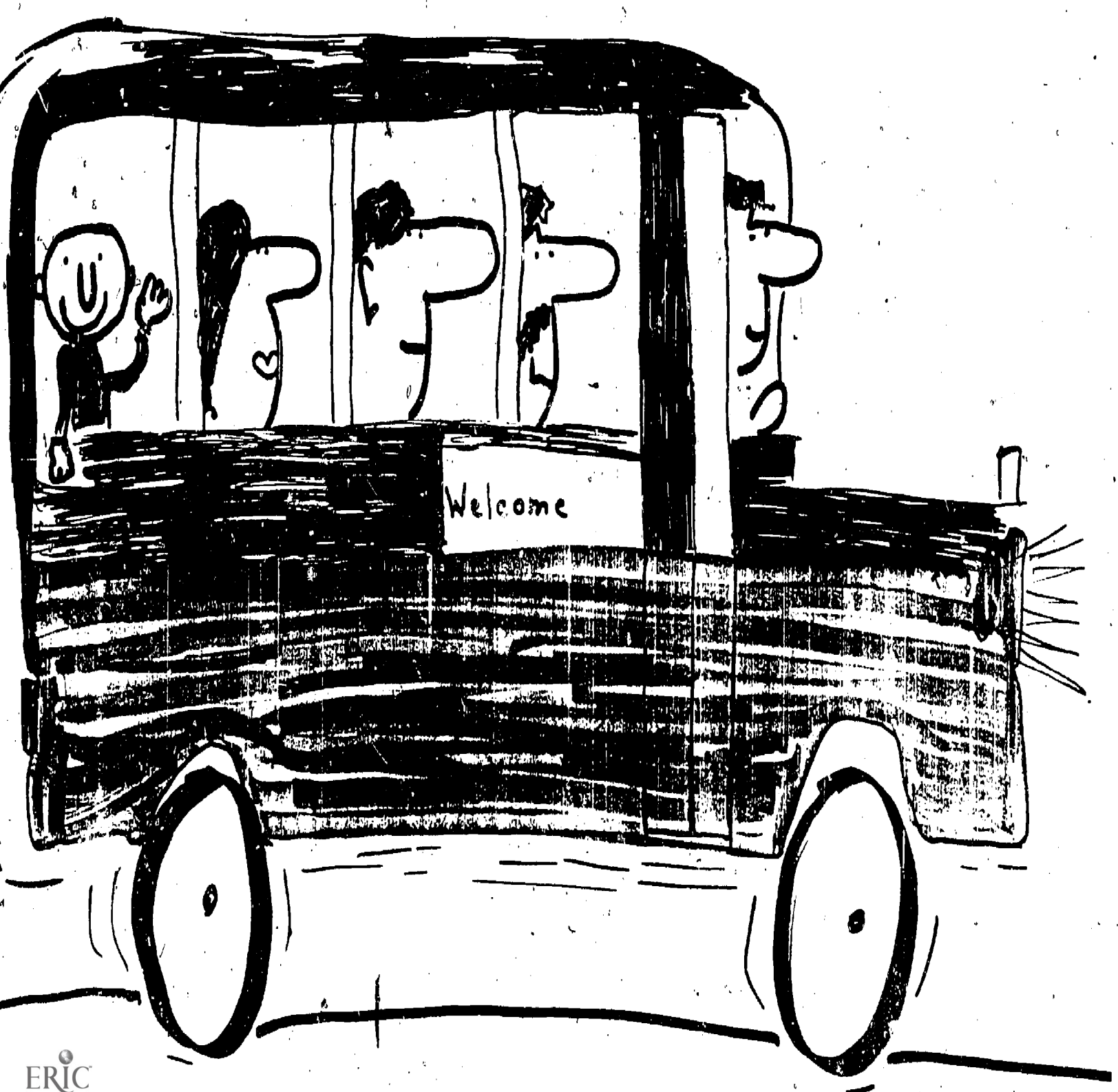
Hurrah for mass rapid transit.

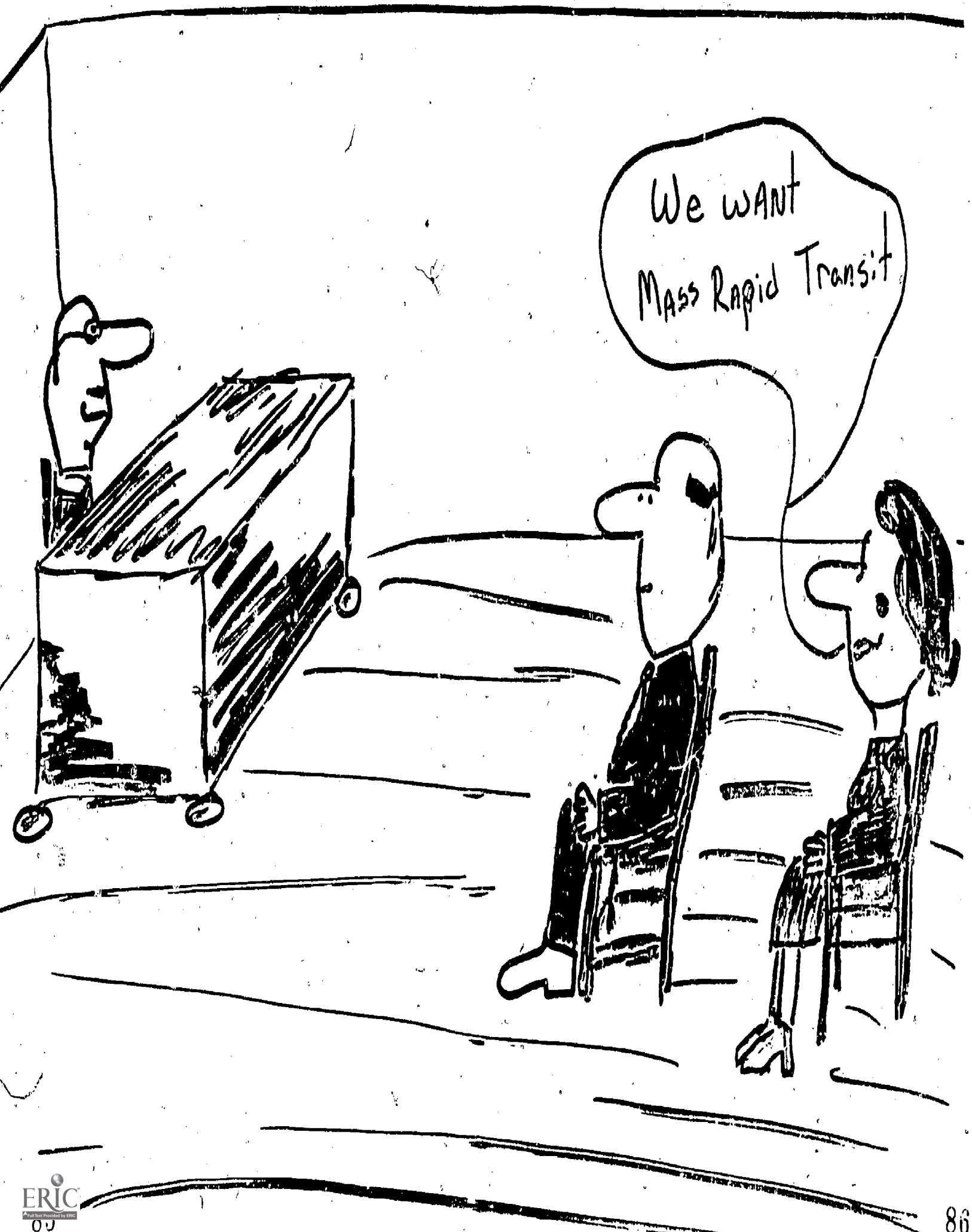
Man and Transportation

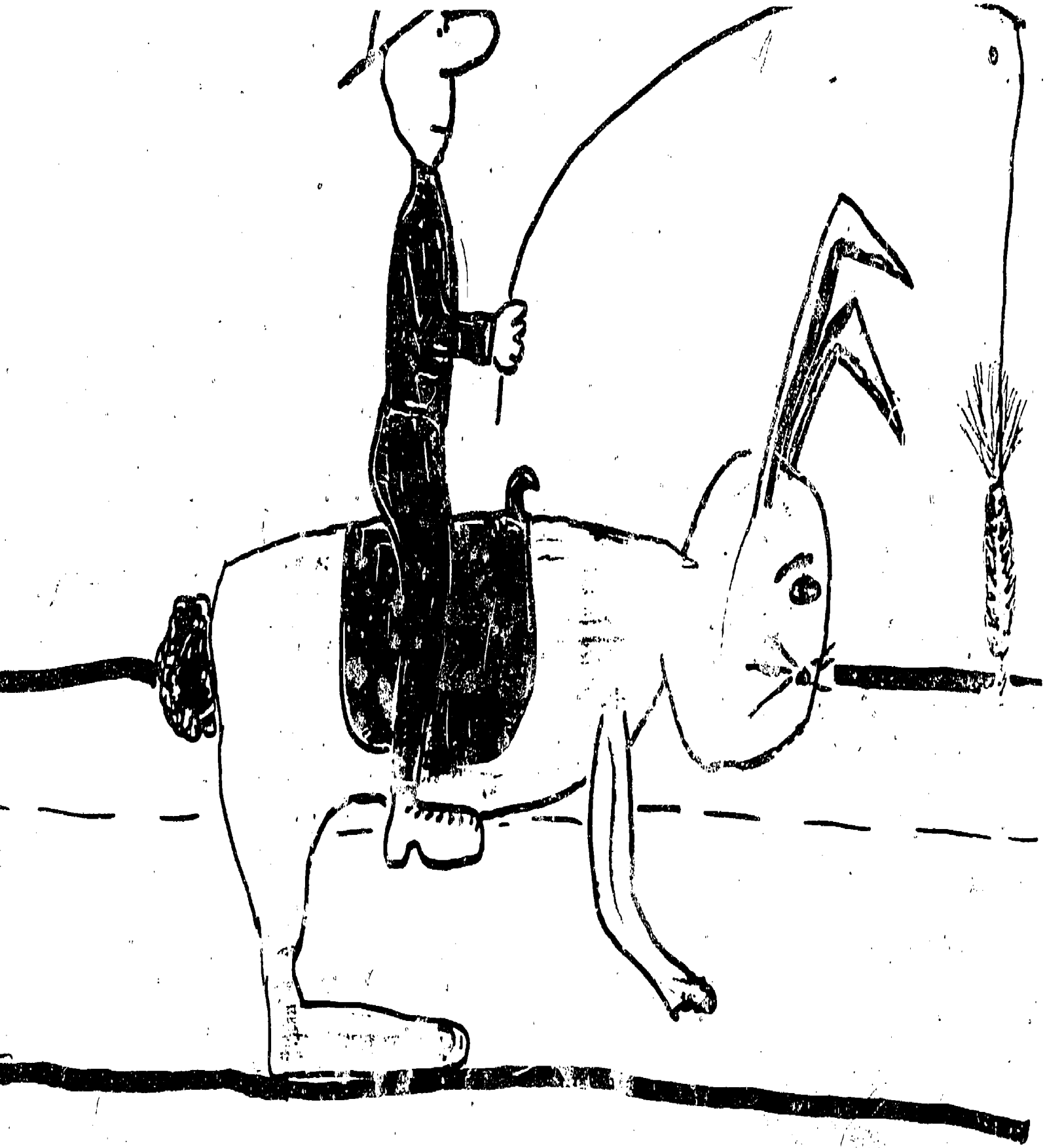


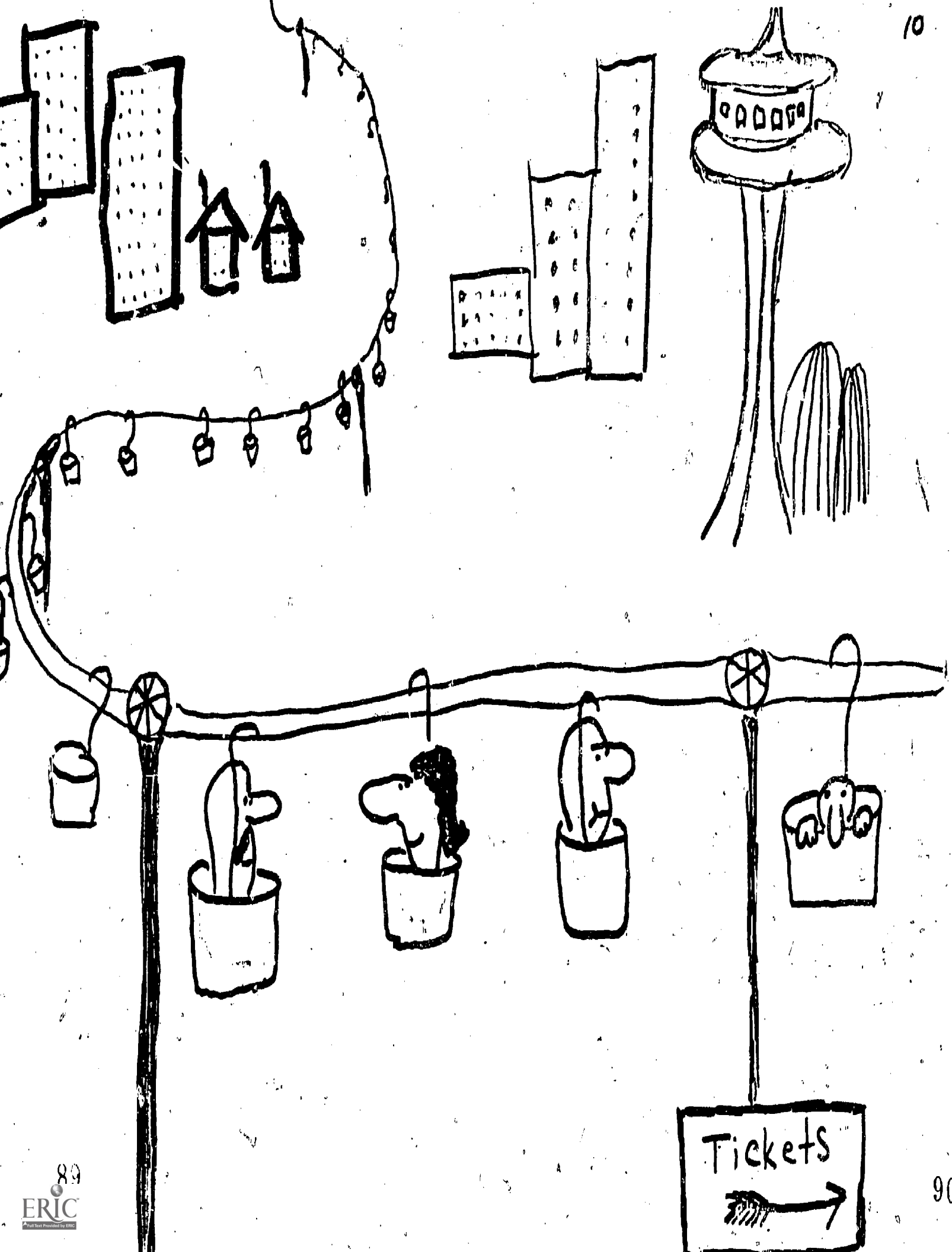


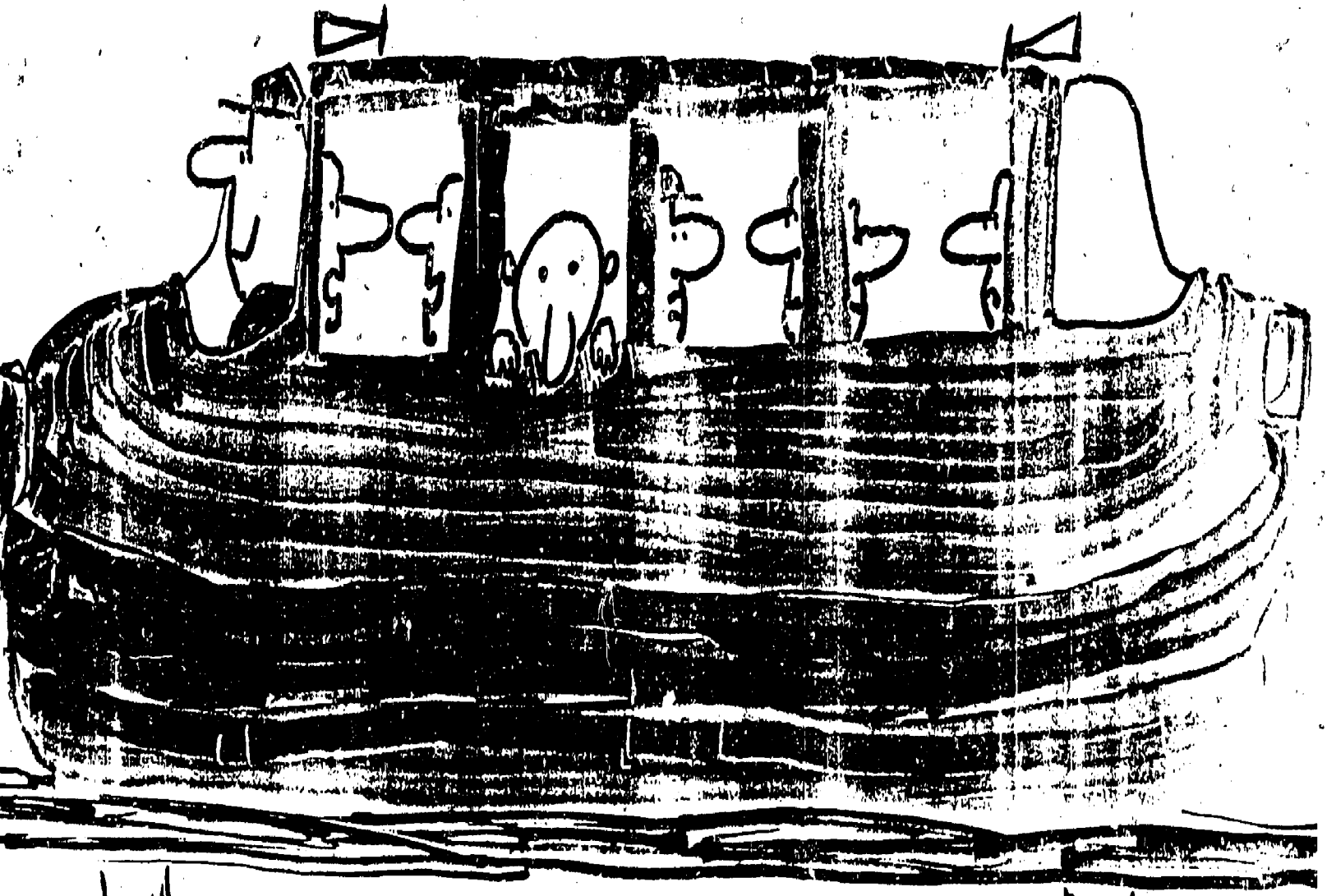

IT REALLY WORKS!!

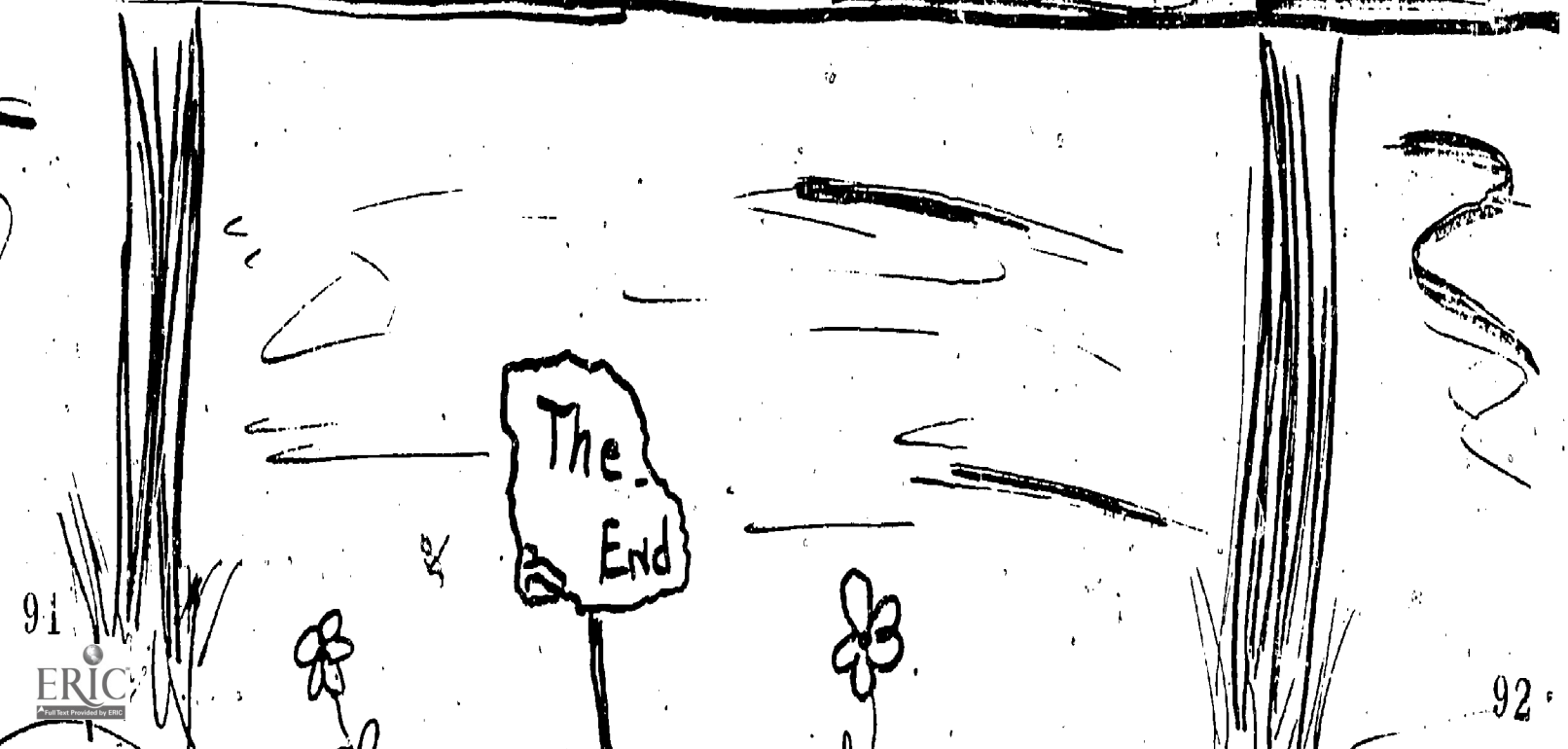

Welcome


We want
Mass Rapid Transit




Tickets




The End

DAY #3

ART

CONCEPT: We should share our ideas.

MATERIALS: Large art paper
Pencil
Crayon

INTRODUCTION. *You have just seen a presentation on mass transit. I am sure you have some ideas, maybe funny, maybe serious, that might work. I would like you to put your ideas on paper.*

Here (hold up newspaper) *are some ideas people sent to A.R.C.O. You probably have seen their ads on T.V. If you have something you really like, you can send it to them. In exchange you will receive an award for sharing your idea with them.*

You may begin. This newspaper will be hanging on the board so you may see it up close. Only two people at a time may look.

(As you move about the room looking at the sketches, have the students label the parts that are important.)

(If space allows, put on the wall).