

## EXPERIMENT & ACTIVITY SONGS

Lyrics and text by Hy Zaret  
Music by Lou Singer

## DOROTHY COLLINS

The Singing Scientists & Adam

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# Dorothy Collins Experiment Songs

from Ballads For The Age Of Science by Hy Zaret and Lou Singer



## IT'S A MAGNET

With your kind permission we would like to say "Hello"  
And to entertain you with a scientific show  
What's the first attraction — would you really like to know? (Yes)  
What's the first attraction? — It's a magnet

### LADIES AND GENTLEMEN...

Here's the kind of magnet that is called a "bar"  
North and South are marked on the magnet  
If you're ever lost and wonder where you are  
Just hang a magnet from a string and "presto-change-o" ...  
The magnet becomes a compass

It's the kind of magnet that we say is "permanent"  
It can do so many things and with your kind consent  
We would like to show you in our first experiment  
What's the big attraction in a Magnet

*Observe the magnet in my hand, ladies and gentlemen. Also, observe the collection of things on the table. I bring the magnet to a nail. Is the nail attracted to the magnet? Yes!! That's because it's made of iron. Here's a penny. Is it attracted to the magnet? No!! The penny is made of copper. Will the magnet attract this paperclip... or this safety pin? Yes!! That's because they both contain iron. How about this rubber band? No!! What else is attracted to a magnet? ... Try it yourself and find out!*

Magnets are attractive but it's time to move along  
And to put a happy ending to the magnet song  
When we ask the question give the answer loud and strong: Ready?  
What's the big attraction? It's a magnet

## WHO'S AFRAID OF THUNDER

Who's afraid of thunder  
(Thunder's just a lot of noise)  
Who's afraid of thunder  
(Like the noise we make with toys)  
When the thunder comes with a boom, boom, boom  
We get out our drums and we room, toom, toom  
When lightning flashes through the sky  
It heats the air as it goes by  
The air expands and rushes back  
And that what makes a thunderclap

Who's afraid of thunder  
(Thunder's just a lot of noise)  
Who's afraid of thunder  
(Like the noise we make with toys)  
When the thunder comes with a boom, boom, boom  
We get out our drums and we room, toom, toom  
*Thunder is just a lot of hot air.*

## IT'S A MAGNET, REPRISE

*Boys and girls, I hope you enjoyed our show... Thank you... But even good things must end you know... So...*

With your kind permission we would like to say "farewell"  
We sincerely hope you liked our little "show and tell"  
Here's a final question just before the final bell — ready??  
What's the big attraction... it's a magnet

How many colors are in the rainbow  
How many colors are in the rainbow  
Count them and you'll see... Seven

VIOLET, INDIGO, BLUE AND GREEN  
VIOLET, INDIGO, BLUE AND GREEN  
VIOLET, INDIGO, BLUE AND GREEN  
YELLOW, ORANGE AND RED

Seven colors are in the rainbow  
Seven colors are in the rainbow  
Seven colors are in the rainbow  
Count them and you'll see... Seven

VIOLET, INDIGO, BLUE AND GREEN  
VIOLET, INDIGO, BLUE AND GREEN  
VIOLET, INDIGO, BLUE AND GREEN  
YELLOW, ORANGE AND RED

*Vibgyor... Remember: Vibgyor*

*Q: What does it mean?*

*A: Vibgyor... The key to the rainbow, v-i-b-g-y-o-r. Violet, indigo, blue, green, yellow, orange and red... vibgyor.*

*Q: Now, do you know it?...*

*A: Yes... Vibgyor... Violet, indigo, blue and green, yellow, orange and red... Vibgyor.*

VIOLET, INDIGO, BLUE AND GREEN  
VIOLET, INDIGO, BLUE AND GREEN  
VIOLET, INDIGO, BLUE AND GREEN  
YELLOW, ORANGE AND RED

## VIBRATION

Wrap a rubber band around an empty shoebox,  
Listen! Listen! You hear nothing

Strike the rubber band with your finger quickly  
Listen! Listen! You hear something  
Now the rubber band's in motion  
And that motion is vibration

You can hear the sound of that vibration carried by the air.

VIBRATION, VIBRATION  
VIBRATION IS WHAT CAUSES SOUND.  
VIBRATION, VIBRATION  
VIBRATION CAUSES SOUND.

*Now, Tony and his guitar will show you how to control the pitch of a sound by changing the vibration...*

*...He raises the pitch by tightening the string*

*...And he lowers the pitch by loosening the string*

*...He raises the pitch by shortening the string with his fingers*

*...He lowers the pitch by lengthening the string with his fingers*

*...He raises the pitch by using a light string*

*...He lowers the pitch by using a heavy string*

*Boys and girls you've just heard a scientific demonstration which proves that the pitch of a sound is changed by changing the vibration.*

VIBRATION, VIBRATION  
VIBRATION IS WHAT CAUSES SOUND.  
VIBRATION, VIBRATION  
VIBRATION CAUSES SOUND.

## WE KNOW THE AIR IS THERE

Get a balloon and blo-o-ow

Fill it full of air

When it's blown up then we know

That the air is there

HI HO FIDDLE DEE DEE, WE DON'T SEE THE AIR

HI HO FIDDLE DEE DEE, STILL WE KNOW IT'S THERE

Take a balloon and go-o-o

Find a scale somewhere

Weigh it empty, weigh it full

Find the weight of air

HI HO FIDDLE DEE DEE, WE DON'T SEE THE AIR

HI HO FIDDLE DEE DEE, STILL WE KNOW IT'S THERE

Get the balloon and blo-o-ow

How big will it get

Let it go and air will flow

It's flying like a jet

HI HO FIDDLE DEE DEE, WE DON'T SEE THE AIR

HI HO FIDDLE DEE DEE, STILL WE KNOW IT'S THERE

*Now we can see the wind blowing papers and moving the branches of trees. And we can feel a strong wind push us. And in a fast moving automobile, we can feel the air go by as it's pushed aside.*

HI HO FIDDLE DEE DEE, WE DON'T SEE THE AIR

HI HO FIDDLE DEE DEE, STILL WE KNOW IT'S THERE

## WHY DOES THE SUN RISE

Where does the sun rise in the morning?

Where does the sun rise? In the East!

Where does the sun set in the evening?

Where does the sun set? In the West!

EAST IS EAST AND WEST IS WEST

NORTH IS NORTH AND SOUTH IS SOUTH

WHERE DOES THE SUN RISE? IN THE EAST!

WHERE DOES THE SUN SET? IN THE WEST!

Where do the birds fly for the summer?

Where do the birds fly? To the North!

Where do the birds fly for the winter?

Where do the birds fly? To the South!

EAST IS EAST AND WEST IS WEST

NORTH IS NORTH AND SOUTH IS SOUTH

WHERE DO THE BIRDS FLY? TO THE NORTH!

WHERE DO THE BIRDS FLY? TO THE SOUTH!

EAST IS EAST AND WEST IS WEST

NORTH IS NORTH AND SOUTH IS SOUTH

POINTING, THEY SAY, IS NOT POLITE

BUT WHEN WE PLAY IT'S QUITE ALRIGHT

## HOW MANY COLORS ARE IN THE RAINBOW

*...Remember... Vibgyor*

How many colors are in the rainbow

## WHAT'S INSIDE OUR EARTH

Our Earth is like a great big grapefruit —  
Twenty-five thousand miles around  
On the outside Land and Water  
And the Atmosphere are found  
Inside the Earth there's Rock and mineral —  
Twenty-five thousand miles around  
Lighter rock is near the surface  
Heavier rock is way deep down  
The outer part is called the "crust"  
The center is the "core"  
From "core" to "crust" the Earth is just  
A lot of Rock and Ore  
Our earth is like a great big grapefruit —  
Twenty-five thousand miles around  
You could dig from here to China,  
If you could dig through the ground  
BUT YOU CAN'T

*There are many useful things inside the earth: iron ore from which we get iron, lead ore from which we get lead, tin ore from which we get tin, stone for building and clay for making bricks. We also get coal and gas and oil from the earth. In fact, the earth is a giant storehouse of useful materials that make our lives more comfortable.*

## WE'RE MAKING HEAT

Rub your palms, rub your palms  
Rub your palms together.  
Rub them hard, very hard  
Feel them getting warm  
Rub them hard, very hard  
Till they are very warm  
Hi ho, what do you know  
This trick is neat  
Hi ho, what do you know  
WE'RE MAKING HEAT!

*In the winter time you rub your hands together to warm them. And, long ago, Indians rubbed two sticks together to start a fire. But today we start a fire by rubbing a match against rough paper. And this rubbing is called "friction". Friction always causes heat.*

REPEAT SONG

*We also get heat from the sun's rays, from steam in radiators, from burning something like coal or oil or gas and from electricity. But my favorite way is making it myself.*

REPEAT SONG

## ICE IS A SOLID

ICE IS A SOLID  
WATER IS A LIQUID  
WATER VAPOR IS A GAS  
THAT'S WHAT THEY SAY  
THAT'S WHAT THEY SAY

### LET'S FIND OUT FOR OURSELVES TODAY

Get a piece of ice and put it in a pan

Put it in a pan in the sun

Wait a little while then another little while

See what the sun has done

*The heat of the sun has melted the ice and changed it into water.*

Now we have the water, water in the pan

Water in the pan, in the sun

Wait a little while, then another little while

See what the sun has done

*If we wait a day or so we will find that the water has disappeared and the pan is empty.*

*The heat of the sun has changed the water into water vapor, a gas, that has escaped into the air.*

ICE IS A SOLID

WATER IS A LIQUID

WATER VAPOR IS A GAS

THAT'S WHAT WE SAY

THAT'S WHAT WE SAY

WE PROVED IT TO OURSELVES TODAY

### WHY DO I HAVE A SHADOW

I have a little shadow... shadow

I have a little shadow that looks a lot like me

I'm very, very glad-o... glad-o

I'm very, very glad-o it keeps me company

### IT'S RAINING... IT'S RAINING IT'S RAINING RAINDROPS ALL AROUND

### WHERE DOES THE SUN GO AT NIGHT

*Q: Where does the sun go at night?*

*A: It doesn't go anywhere; it's just out of sight*

*But if you're in the dark about day and night*

*This little song will show you the light*

The earth spins around as it circles the Sun

The Sun that gives the Earth its light

Each twenty-four hours it spins around once —

That's why we have Day and Night

Day and Night, Day and Night, Year and Season.

Whether the weather is hot or freezin'

The Earth goes around and that's the reason

We have Day and Night

The part of the Earth that is facing the sun

Gets light as bright as bright can be

The part turned away from the Sun gets none

Its as dark as Night can be

Day and Night, Day and Night, Year and Season

Whether the weather is hot or freezin'

The Earth goes around and that's the reason

We have Day and Night.

WE HAVE DAY AND NIGHT

*It's time for intermission, boys and girls... take a deep breath... relax... again... Once again... okay... intermission's over... the show must go on.*

### **WHY IS IT RAINING RAINDROPS**

*Why is it raining raindrops?*

**THE WATER GOES UP AND THE WATER COMES DOWN  
AND WE HEAR THE RAINDROPS ALL AROUND  
IT'S RAINING... IT'S RAINING  
IT'S RAINING RAINDROPS ALL AROUND**

The sunlight heats the water

Which rises in the air

The higher up it travels

The cooler it is there

The droplets come together

And form the clouds we see

Then all at once it's raining

Down on you and me

**THE WATER GOES UP AND THE WATER COMES DOWN  
AND WE HEAR THE RAINDROPS ALL AROUND  
IT'S RAINING... IT'S RAINING  
IT'S RAINING RAINDROPS ALL AROUND**

*Now the sunlight heats the ocean and changes some of the water into vapor, which then rises in the air. Winds blow the water vapor over land and sea. And when the air is cooled the water vapor changes to droplets and clouds are formed.*

**THE WATER GOES UP AND THE WATER COMES DOWN  
AND WE HEAR THE RAINDROPS ALL AROUND**

It tags along when I play ball  
I run, it runs, I crawl... it crawls  
Sometimes it's tall, sometimes it's small  
Sometimes it isn't there at all

Why do I have a shadow... shadow

How did my little shadow ever come to be

*I have a shadow, too*

*Why do I have a shadow?*

When the sunlight meets your body, it cannot pass through  
Then you body casts a shadow right in back of you

If you turn around you'll see your shadow at your feet

And when the sun is high above, how small it gets to be

*Q: Why is that?*

*A: When the sun is directly above you the sunlight is blocked only by your head and shoulders, so the shadow is small. But when the sun is low in the sky your entire body blocks the light. Also, from this position, the shadow spreads out along the ground, so it is bigger.*

Every shadow is a dark spot, and it's clear to see

Your shadow looks a lot like you and mine takes after me

*Aren't shadows lots of fun.*

### **ROCKS AND GEMS AND MINERALS**

Rocks and Gems and Minerals

Rocks and Gems and Minerals

Any one can have some fun

With Rocks and Gems and Minerals

What's a rock and what's a Gem  
How do you distinguish them  
What's a Gem and what's a Rock  
If you know the answer, knock!

*Rocks are made up of one or more minerals. And gems are certain kinds of rare and valuable rocks.*

There are different kinds of rock  
Think of some before you knock.  
Do you know some kinds of rock  
Scratch your head and give a knock!

*Granite... Sandstone... Marble... Slate... Shale... Limestone... Flint... Obsidian... Feldspar.  
Good that's enough for now.*

*Q: How were the rocks formed?*

*A: Well, some rocks, like obsidian, were formed from lava that came from erupting volcanoes. And other rocks, like shale and sandstone, were deposited in layers by rivers and on the sea shore. Other rocks, like slate, were formed in the earth by great heat and pressure.*

Rocks and Gems and Minerals  
Rocks and Gems and Minerals  
Any one can have some fun  
With Rocks and Gems and Minerals

## THE EARTH GOES AROUND THE SUN

The Earth goes around the Sun, La la la  
The Earth goes around the Sun, La la la  
Around and around and around and around  
The Earth goes around the Sun

The Moon goes around the Earth, La la loo  
The Moon goes around the Earth, La la loo  
Around and around and around and around  
The Moon goes around the Earth

Stop and listen!

*It takes the moon about a month to complete one trip around the earth. A strange thing about the moon is that it always turns the same side toward us.*

The Planets go 'round the Sun, la la lee  
The Planets go 'round the Sun, la la lee  
Around and around and around and around  
The Planets go 'round the Sun.

Do Stars go around the Sun (No!)

Do Stars go around the sun (No!)

Around and around and around and around  
Do stars go around the sun (No!)

Stop and listen!

*Each star is like our sun and much farther away than any of our planets. The stars move but not around our sun.*

The Earth goes around the Sun, la la la  
The Moon goes around the Earth, la la la  
The Earth and the Moon and the Planets too  
They all go around the Sun

Around and around and around and around.  
They all go around the Sun

*Ah, but not the stars.*