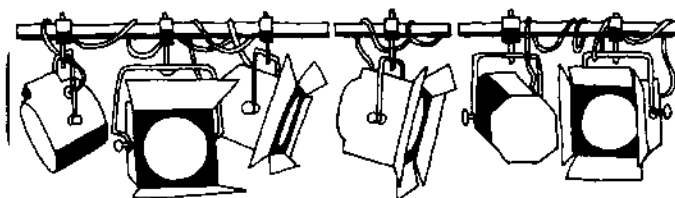


LIGHT AND COLOR



CFE 3266V

OPEN-CAPTIONED
ALTSCHUL GROUP
CORPORATION

1993

Grade Levels: 2-5

15 minutes

DESCRIPTION

An elementary class prepares for a visit from the Shadow Players, a group who uses light, shadow, and color to tell a story. The class learns about sources of light, shadows, and silhouettes. They experiment with transparent, opaque, and translucent objects to see what lets light through. Using a prism, they discover the colors in the light spectrum. Reviews at the end.

INSTRUCTIONAL GOALS

- To introduce the concepts of *light* and *color*.
- To demonstrate various sources of light and the colors in the spectrum.
- To present experiments with light and color.
- To demonstrate how light and shadow contribute to visual perception.

BEFORE SHOWING

1. Read the CAPTION SCRIPT to determine unfamiliar vocabulary and language concepts.
2. Make shadow figures of animals and other shapes, using a strong source of light.
3. Identify different colors in the room.
4. Identify different sources of light in the room.
5. Discuss the purpose of experiments. Describe a favorite experiment.

DURING SHOWING

1. View the video more than once, with one showing uninterrupted.
2. Point out vocabulary for each unfamiliar concept as it appears, and review the definition.
3. Pause as the teachers add colored cellophane to the bird. Predict the result.

AFTER SHOWING

Discussion Items and Questions

1. Discuss and compare both parts of the play performed by the Shadow Players. List the various materials being used in the play.
2. Discuss different materials through which light passes. List three examples which illustrate the following concepts:
 - a. Transparent
 - b. Opaque
 - c. Translucent
3. Discuss the concept of *reflection*.
4. Discuss the light spectrum.
 - a. Relate a prism to the spectrum.
 - b. Identify the seven colors.
 - c. Sequence colors from red to violet.
 - d. List two places where a spectrum can be seen.
5. Identify the ways the players made their puppets more interesting. Include:
 - a. Addition of colors.
 - b. Art techniques such as cutting out various parts of puppets.
 - c. Use of background.
6. Discuss the need for cooperation when preparing for a project like a play. Recall ways in which the Shadow Players demonstrate this concept.

Applications and Activities

1. Experiment to explore and report on the following:
 - a. Light sources
 - b. Color and light
 - c. Rainbows
 - d. Reflections
 - e. Prisms
2. Experiment with colorful rainbow crystals, and grow a rainbow garden.

3. Create a color wheel using primary and secondary colors.
4. Create a rainbow using fingerpaints. Press painted hands onto the rainbow in the sequence as the colors appear naturally.
5. Research shadow games. Add to skills in using hands to create shadows of animals and objects.
6. Create silhouettes. Outline and frame the portraits. Display and identify.
7. Create various kinds of puppets, such as index card puppets, milk carton puppets, and finger puppets.
8. Develop a script and perform a creative play, using puppets which block, reflect, or change light.
9. Use prisms to project the colors in the spectrum.
 - a. Identify each color as it appears in order.
 - b. Introduce the mnemonic device *ROY G BIV* to remember the colors in their order of appearance.
10. Research literature in which shadows and rainbows appear. Include:
 - a. The story of Noah's ark
 - b. Peter Pan
 - c. The Wizard of Oz
11. Research the causes of rainbows. Determine what causes them, when they occur, and why.

WEBSITES

Explore the Internet to discover sites related to this topic. Check the CFV website for related information (<http://www.cfv.org>).

CAPTION SCRIPT

Following are the captions as they appear on the video. Teachers are encouraged to read the script prior to viewing the video for pertinent vocabulary, to discover language patterns within the captions, or to determine content for introduction or review. Enlarged copies may be given to students as a language exercise.

(woman)
Once upon a time,
in the kingdom of Spain,

there was a little bird
who sang the same song
over and over again.

She sang of a prince

who lay in a deep sleep
far, far away

in a great deserted castle,

for the prince was
under a spell.

If someone could find
the hidden castle,

then the spell would be broken.

One day, as the little bird was
singing in the palace gardens,

the princess walked by,
and she stopped to listen.

And the bird sang,
and the princess understood.

She decided that she must be
the person to break the spell.

(male narrator)
That's "The Sleeping Prince,"

a play performed
by the Shadow Players.

(woman)
I've cut
something out.

(narrator)
They're preparing to take
the play to a school.

To make the puppets, first,
the players cut out the shapes

from black cards.

The bird is made by joining
together the moving parts--

its head, body, and wings.

Hold it up again,
Kate.

(narrator)
When the bird is held
in front of a light,

it casts a bird-shaped
shadow on the screen.

The shadow is formed
because the black card

blocks out the light.

(woman)
Show up the feathers.

(narrator)
To make the bird shape
more interesting,

holes are cut into the card
to allow light to pass through.

Oh, yeah.

That's nice.

(narrator)
It's beginning
to look better already.

(woman)
Yes. That's much better.
We'll have to cut out the beak.

(Kate)
Yes. Let's cut that.

(narrator)
The next step is
to add color.

Colored cellophane
stuck over the holes

will still allow light
to shine through.

We need a stick
somewhere here.

(narrator)
What do you think
it'll look like?

That looks much better.

It's lovely.

(narrator)
Light passing through the holes
looks like colored feathers.

(woman)
That's lovely, Kate.
Can you turn it round?

(narrator)
It's all done by light,
shadows, and color.

Here's some more light--
candlelight.

[children blowing]

These children are looking
at different sources of light.

How many can you spot?

[children chattering,
indistinct]

[switches turn on]
click, click

[children exclaiming]

(narrator)
The children are also
enjoying making shadows.

How could they make
their shadows bigger?

[children chattering]

These experiments
with light and shadows

are part of the children's
preparations for a visit

from the Shadow Players.

Look at this careful
shadow work.

What do you call a shape
that is drawn like this?

This side picture
is called a silhouette.

I think it will
let light through.

(narrator)
This group is trying
to find out

which objects will let light
through and which will not.

See, you can see
through it.

Some materials are nearly clear.
You can see through them.

We call these objects
transparent.

They let light
pass through easily.

(teacher)
What about that?

(girl)
You can't see through that.

(narrator)
*There are other materials
which you cannot see through.*

*Light will not pass
through them either.*

*We call these materials
opaque.*

*When you shine a light on them,
they cast a shadow.*

*This is blocking
the light.*

*Yeah. It's
called opaque.*

*That's right.
This is opaque.*

(narrator)
*But there are some materials
that cast a light shadow*

*and let light through
at the same time.*

*We call these materials
translucent.*

*They are not transparent,
and they're not opaque.*

They're somewhere in between.

*You can see your reflection
in some surfaces.*

*Where would you look
to see your reflection?*

*A mirror is
a good reflector.*

It also reflects light.

(woman)
A strip of light.

(narrator)
*Watch how the mirror
reflects this strip of light.*

*But look what happens
when you pass light*

*through this triangular-
shaped piece of glass*

called a prism.

*The prism splits the white light
into seven different colors--*

all the colors of the rainbow!

*White light is made up
of all these colors,*

the colors of the spectrum.

(girl)
Orange and purple.

(children)
*Red and orange and yellow
and green*

*Are the colors of the rainbow
I can see*

Blue and indigo

(narrator)
*These children are
on an expedition*

*to find all the colors
of the spectrum.*

*These colors are all around us,
everywhere in nature.*

[children's song continues]

*You can make a record
of the colors around you*

*by picking tiny pieces of color
and sticking them to a card.*

[children chattering]

(narrator)
*Some of the things
you can do with colors*

*make the world
seem a different place.*

(teacher)
You can wear them.

[laughs]

*Very good. Set it
on your nose.*

(narrator)
*Color can change
your view of things.*

Those colors look
very different.

[laughs]

(boy)
*Oh, it's yellow outside.
And it hurts my eyes.*

(teacher)
*Doesn't it? Because
it's so bright.*

(narrator)
*The Shadow Players
have arrived.*

*They use light,
shadows, and color*

to entertain people.

*Do you remember the start
of the play?*

*The princess had set out
to find the sleeping prince.*

(Kate)
*The princess told the old man
that she was searching*

*for the castle
of the sleeping prince.*

*He did not know where it was,
but he said,*

"My wife may know,

*if you are brave enough
to wait until she returns.*

*Then there was a noise
like rolling thunder!*

[metal sheet rattling]

*The sea came crashing and
raging into the cave.*

"Husband," she roared.

"I smell mortal flesh!"

*"Oh, hush, wife,"
said the old man.*

*The princess told the sea
what she was searching for.*

*But the sea did not know
where the castle was.*

*"Perhaps my brother the sun
may have seen it.*

*On my next tide, I will take you
on a journey towards the sun.*

Then there was a bright flash.

[cymbals rattling]

*And the sun came blazing
into the cave.*

"Wife, I smell mortal flesh!"

"Oh, hush, husband."

*The old woman beckoned
to the princess to come out.*

*She told the sun
that she was searching*

*for the castle
of the sleeping prince,*

*but the sun did not know
where it was.*

*The princess was
bitterly disappointed.*

But the sun spoke again.

*"Perhaps my cousins the stars
may have seen it."*

*Then there was a humming
and a tinkling*

*and a clanging
and a clinking.*

*And the princess rushed
to hide.*

*[noisemaker sounding]
whoo-oo-oo-oo*

[zither strings chiming]

*When she told the stars that she
was searching for castle,*

*they jumped up and down
in excitement.*

"Yes, yes!" they shrieked.

*We have seen the castle!
We know where it is!*

*[noisemaker sounding]
whoo-oo-oo*

*And the princess
could hardly believe it.*

*She thanked the stars
and set off towards the castle.*

*At last the princess came
to a bedchamber*

hung with curtains of gold,

*and there on the bed
lay a beautiful prince.*

*And the princess smiled
and looked into his eyes.*

She took his hand in hers.

*So at last the spell
was broken.*

*And whether they lived
happily ever after or not,*

I do not know.

That is another story.

*But one thing I do know
is this:*

*From that day on, the little
bird who began this story*

at last changed her tune.

*(narrator)
So the prince awoke,*

and they both lived on--

thanks to light and color.

*There are lots
of sources of light.*

Light is made up of colors,

*all the colors
of the rainbow.*

White light can be split up

*into the seven colors
of the spectrum.*

*Light passes through
some material.*

*Other materials
block the light*

and shadows are cast.

*With light, shadows,
and color,*

we can do magical things.

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