

## Spectrum in Alaska Native Languages

### **Overview:**

Native language may be used in the science classroom as it applies to observations and recording data. In this lesson, students learn Native language words for colors represented in the colors of the aurora spectrum and the sunlight spectrum. Please adapt this lesson to the local Native language if necessary.

### **Objectives:**

The student will:

- identify the word for colors in the local Native language; and
- differentiate between the spectrums of the aurora and sunlight.

### **Materials:**

- 4 1/4” x 11” sheets of paper (4 sheets per student)
- Colored pencils
- *Aurora Alive* multimedia video playlist
- TEACHER INFORMATION SHEET: “Native Languages: Spectrum Colors”
- STUDENT WORKSHEET: “Spectrum in Alaska Native Languages”

### **Activity Procedure:**

1. Review TEACHER INFORMATION SHEET: “Native Languages: Spectrum Colors.” Write the local Native language vocabulary on the board.

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**Teacher’s Note:** Different cultures view color differently. Some languages have words for colors that do not have an English equivalent, and some languages do not have a word for a color represented in English.

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2. Distribute the STUDENT WORKSHEET: “Spectrum in Alaska Native Languages.” Ask students to record vocabulary notes in the box on the worksheet. Go over the correct pronunciation for each word and allow students time to practice.
3. Link *Aurora Alive* playlist to students. Inform the students that some colors identified by the English spectral colors (ROY G. BIV: Red, Orange, Yellow, Green, Blue, Indigo, Violet) may not have an equivalent in the Native language. To make the colors more vibrant, use black paper and pastels.

### **Answers to Student Worksheet:**

Use the information sheet to check for correct spelling of colors. The spectrums should reflect the information below.

*Aurora*



*Sun*



## Native Languages: Spectrum Colors

In 1868, Anders Jonas Angstrom used a prism to compare the spectrum of light produced by the aurora with the spectrum of sunlight. The solar spectrum is the rainbow with colors flowing into each other. The spectrum of the aurora is distinct with separated colors.

The following is a list of colors in several different Native languages. Different cultures view color differently. Some languages have words for colors that do not have an English equivalent, and some languages do not have a word for a color represented in English. Note any changes to make the vocabulary more accurately reflect the local language, and seek out Native language speakers to help with pronunciation. If your language is not listed, please record it in the blank space below.

<b>Gwich'in (stem)</b>	<b>Denaakk'e</b>	
daatsik: red	daatekk'ee: red	
ooriinchis: orange	letsughee: green	
atsoo (-tsoo): yellow	letlughee: yellow, orange, brown	
dats'an t'oo: green	neetl'oonee: blue	
ch'ah't'oo: blue	daafetl'edzee: black	
tr'ichiikhii: purple	lekk'ulee: white	
azhrai (-zhrai): black	daatekk'es huyoze: pink	
daagai (-k'aa): white	nedenaadlekkats: multi-colored	
athoo (-tthoo): brown	yo denaafetl'oone: rainbow	
avee: gray		
daatsik drin: pink		
nitlitsik: multi-colored		
shreevyaa: rainbow		
yahkaih: aurora		
drin oozhrii, shree: sun		

<b>St. Lawrence Island Yupik</b>	<b>Yup'ik</b>	
minguk: color	kavirliq: red	
kavilnguq: red	qalleryak: orange	
kavizik: orange	esirliq: yellow	
sungaghyuk: green	cungagliq: green	
sungaghyuk: blue	qiurliq: blue	
qatelghii: white	qatellria: white	
tagneq: brown, black, dark	tungulria: black	
kavighzik: pink	nunapigngalnguq: brown	
nighulghii: light (brightness)	kavirrluk: pink	
akiqaghun: light source	agluryaq: rainbow	
agluk: rainbow	kiuryaq, qiuryaq: aurora	
kiighwyaq: aurora	akerta: sun	
siqineq: sun	minguk: color	

## Native Languages: Spectrum Colors

**Directions:** In 1868, Anders Jonas Angstrom used a prism to compare the spectrum of light produced by the aurora with the spectrum of sunlight. Record the vocabulary and listen carefully to the pronunciation of the words. Next, practice pronouncing these words while learning about the color spectrums. Finally, create a layered book to illustrate the spectrums and Native language for colors.

Colors in My Native Language

### **Procedure:**

1. Use the *Aurora Alive* playlist to find the spectrum of the sun and aurora.
2. To make the layered book, stack four sheets of paper (4 1/4" x 11") so that each sheet is a little less than 1 inch higher than the one above. Bring the bottom edges of the sheets upwards and align the edges so that all of the layers or tabs are the same distance apart (see Figure 1, below).
3. When all the tabs are the same distance apart, fold the papers and crease well.
4. Open the papers and glue them together along the inner fold or staple them along the outside fold (see Figure 2, below).
5. Draw a line across the tabs so that the whole layered book is divided in half. One side will represent the solar spectrum and the other will represent the spectrum of the aurora.
6. On the solar side, color in the tabs that correspond to the colors of the spectrum (ROY G. BIV). Try to shade the colors so they blend into each other as they do on the spectrum. On the aurora side, color lines on the tabs that correspond to the lines of the aurora spectrum (see Figure 3, below).
7. Above each color, write the color in the local Native language.

Figure 1

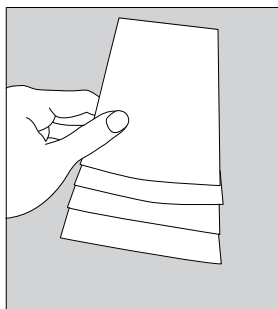


Figure 2

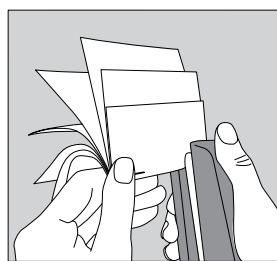


Figure 3

