



## LASER SAFARI TEACHER GUIDES

Dear Assembly Coordinator and Teachers,

The following pages contain teacher guides to be used in conjunction with Prismatic Magic's Laser Safari assembly and the Laser Safari Student Worksheet Masters located on Prismatic Magic's Web site.

The teacher guides provide additional information about the laser show. They give ideas and suggestions for ways to tie the assembly into the curriculum for specific grade level ranges but you may use ideas from any age group you would like. All ideas are suggestions and may be used as deemed appropriate by individual teachers.

Sincerely,

Your Friends at Prismatic Magic



TEACHER GUIDE  
GRADES K - 2

*LASER SAFARI*

To increase the educational aspect of the laser program, this guide is to be used AFTER the performance.

## Language Skills

### **Parts of Speech**

Make a list of as many adjectives the students can think of to describe the show. If they haven't learned about adjectives yet, ask them how they would describe the show or the lasers or the performance. Make a list of all the nouns they saw during the performance in person or on the screen. What happened during the show? Make a list of verbs. How did those things happen? Make a list of adverbs. Have a contest to see which student or group of students can come up with the most adjectives, nouns, verbs, or adverbs.

### **Writing**

Write about what happened during the performance. What was their favorite part? What did they like or dislike? What would they have changed? What songs would they have added or taken out? Depending on the students' writing level, have them write a sentence, a paragraph, or a story about the show. Or have them draw a picture and dictate a sentence or paragraph about what they drew.

## Math

### **Basic Math Facts**

Make up some simple stories about the laser show that can be used to teach basic math facts. Examples:

- Professor Bristlebrow said, "Get to it, people" twice in one message and once in another. How many times did he say it all together?
- Three children in 2<sup>nd</sup> grade sang to *In the Jungle*. Two children in 1<sup>st</sup> grade did not. How many more children sang to *Walking on Sunshine* than did not?
- Three classes watched the show. Two children in each class clapped along with every song. How many children clapped with every song?

### **Graphing**

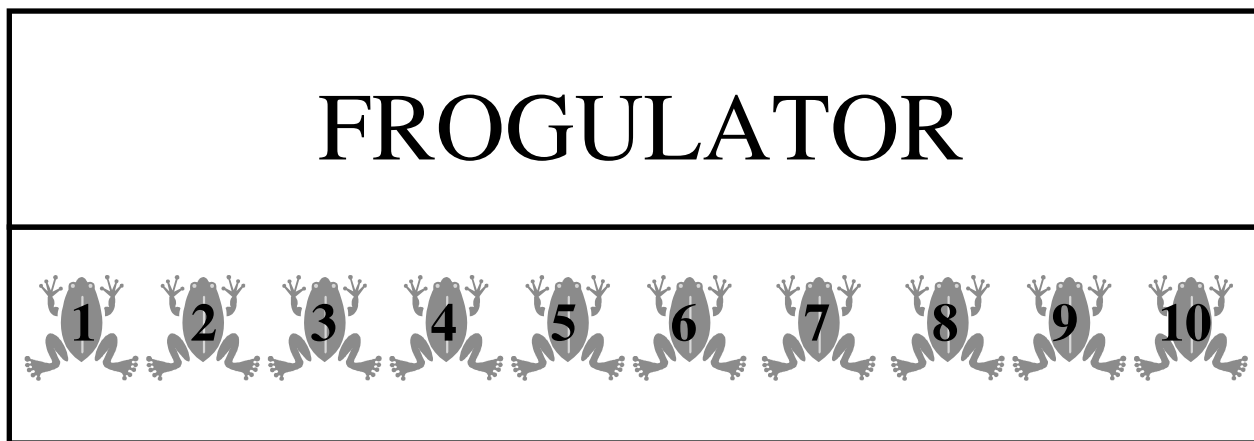
Many bar graphs can be constructed about the performance. Choose a few songs from the performance and graph the popularity of each one. Which part of the show was the most popular - the music or the laser images? Graph it and find out.

A pie graph was used during the assembly to show the amounts of different animals in the Serengeti. Create various graphs with the same data to show how different graphs can show the same information differently. (1.5 million wildebeests, half a million gazelles, and a quarter million zebras.)

Look on the Internet for numbers of other animals in the Serengeti or animals in the rainforest and graph those too!

## Math Frogs or FROGULATORS

Frogs are plentiful in the rainforest. Here is a fun way to help students with addition and subtraction. Copy the following images onto green cardstock. Cut them out, laminate them if you wish, then cut them out again if you do. Each frogulator has two pieces – the piece with the word FROGULATOR on it, and the piece with the numbered frogs. To use the frogulator, students put the FROGULATOR piece on top of the piece with the numbered frogs, covering the frogs completely. For an addition problem like  $2 + 5$ , they slide the top piece over until the frog with the number two is showing. Then they slide it over five more frogs to reveal the frog with the number seven. Subtraction just works in reverse.



### Science

#### Make it rain in your classroom

Remember, the Amazon Rainforest receives about nine feet of rain per year. A simple demonstration will show students how rain is formed. If you do this demonstration, please take all necessary precautions to be sure no one gets too close to the hot water.

Materials needed:

Boiling water

Hot pad

Ice tray with ice still in it

1. If you can boil water in your classroom, do so. If not, bring it in from another room. Please be very careful with this as we want no one to get hurt.
2. Put the boiling water on the hot pad.
3. Hold the tray of ice over the steam from the boiling water and watch what happens!

The steam collects where the air is cool. As more steam reaches the ice, it forms drops of water that will eventually fall, just like rain.

## Movement

### **Rainstorm**

Create a rainstorm in your classroom without getting wet. Divide the class into five groups. The teacher will first rub both hands together. After a few second delay, the first group of students rubs their hands together. A few more seconds and the next group joins in until all groups are rubbing their hands together. Next the teacher snaps fingers on both hands. The first group then starts snapping fingers. Each group must continue rubbing hands until it is their turn to snap. When all groups are snapping, the teacher starts patting both legs. Go around until all groups are patting their legs. Again, each group must continue snapping until it is their turn to pat their legs. Finally, the teacher stomps both feet on the ground. Each group then stomps their feet in turn until everyone is stomping. Then on a signal from the teacher, everyone claps their hands loudly while continuing to stomp. Everyone in the class claps at the same time. You may clap a few times to represent lightning and a sharp crack of thunder. Then the teacher does each step in reverse with each group following – patting legs, then snapping, then rubbing hands. If done properly, it will sound like a rainstorm comes in and passes by your classroom.

### **Move like an animal**

Teachers got to move like animals during the assembly. Students love to do the same thing. Choose an animal from the Serengeti or the rainforest and let the students move around the room, dance, or even have a race!

## Art

### **Art Skills**

Have the students draw a picture of their favorite part of the performance. They can also decide what they would like to include in a laser show and draw that. Or have them think of their favorite song and draw a laser scene from it. Listen to music and have students picture how they could create the music visually. Then have them create it. The movies *Fantasia* and *Fantasia 2000* are excellent examples of this.

### **Insects Everywhere**

Insects are everywhere in the Amazon, but there are also some in the Serengeti. Let your students make an art project where the insects can move!

Materials needed:

Lightweight paper plate or a file folder, one per student

Crayons

Construction paper

Paper clips

Small magnet, one per student

1. Using the crayons, have each student draw either a rainforest scene with lots of trees and leaves, or an animal from the Serengeti onto the plate or folder.
2. Cut out two insect shapes from the construction paper. For younger students, it may be easier to have the insects already cut out. The students can draw faces on the insects or decorate them if they wish. For the rainforest, the insects can be ants, butterflies, or more exotic insects like walking sticks – they could even do a caterpillar, which isn't an insect, but will still work. For the Serengeti, flies would be the best insect.
3. Clip a paper clip onto each insect shape.
4. Put the insects on the paper plate or folder. To make them move, hold a magnet underneath the plate or folder and move the magnet around. It will look like the insects are moving around in the rainforest or like two flies landing on an animal in the Serengeti!

A variation would be to make small zebras or other migrating Serengeti animals and put the paperclips on them. Then they can magically migrate up and down the Serengeti using the magnets behind the paper.

### **Your ideas**

Go ahead and draw on your knowledge and skills to come up with any other activities. Relate the lasers to something you are teaching in any subject. Who better to come up with activities than you – the teacher!!



TEACHER GUIDE  
GRADES 3 - 5

*LASER SAFARI*

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## Language Skills

### **Parts of Speech**

Make a list of as many adjectives the students can think of to describe the show. Make a list of all the nouns they saw during the performance in person or on the screen. What happened during the show? Make a list of verbs. How did those things happen? Make a list of adverbs.

### **Writing**

Write about what happened during the performance. What was their favorite part? What did they like or dislike? What would they have changed? What songs would they have added or taken out? Have the students write an informative article about the performance, an advertisement or brochure for the performance, a critique of the show, a persuasive argument for or against this assembly, etc. Have the students come up with a theme for their own laser show. What would it be? What songs would go with their theme?

### **Word Puzzles**

Give the students graph paper and let them create word searches, crossword puzzles, codes, etc., using words or phrases from the laser show. Then let them trade puzzles with other students to see if they can solve them. As a class, create a giant puzzle on a piece of butcher paper and share it with another class.

### **How Many Words?**

Write an Amazon Rainforest word or Serengeti word on the board. How many words can the students come up with using only those letters?

Example word: *rainforest*

Words from *rainforest*: *rain, forest, fair, air, train, fort, frost, torn, rest, . . .*

## Math

### **Graphing**

Many bar graphs can be constructed about the performance. Vote on the songs from the performance and graph the popularity of each one. Which part of the show was the most popular - the music or the laser images? Graph it and find out.

A pie graph was used during the assembly to show the amounts of different animals in the Serengeti. Create various graphs with the same data to show how different graphs can show the same information differently. (1.5 million wildebeests, half a million gazelles, and a quarter million zebras.)

Look on the Internet for numbers of other animals in the Serengeti or animals and plants in the rainforest and graph those too!



## Art and Music

### **Recycled art**

Taking care of the environment is important to the rainforest, the Serengeti, and the entire earth, including your own community. Students can have some fun with recycling by making art out of garbage. Have students collect “garbage” at home – this could be empty cans, bags, boxes, tubes, string, newspaper, or anything that is being thrown out at home. Just be sure the students wash them out before bringing them in. Then let them be creative. They can create animals or plants from the rainforest or Serengeti or anything else. Let them display their recycled creations around the classroom.

### **Raindrop art**

After talking about the rainy season in the Serengeti and the nine feet of rain each year in the Amazon Rainforest, why not make some art?

Materials needed:

White construction paper – any size

Water

Paint brushes

Water colors

Markers

1. Using the paintbrush, cover the entire sheet of paper with water.
2. Make the water colors very thin by dropping water onto each color. You want the water color to drip off the paint brush.
3. While the paper is still wet, dip the paintbrush into one color of thin watercolor. Hold the brush over the wet paper and let a drop fall. The paint will blur, run, and fuzz.
4. Drip the watercolors around the paper, using the same or different colors. This should be done sparingly as the paints will spread around as they are dropped.
5. Let the papers dry completely. Have the students look for objects in the art. They could find animals, plants, or anything else. Using a marker, let the students draw an outline and a few other lines to define what they see in their raindrop art. You may be amazed at the creativity of your students.

## Social Studies

### **Build a rainforest**

There are many teaching aides to help study the rainforest, but why not build one in your classroom? It can be as large or small as you would like. Assign groups of students different layers of the rainforest (forest floor, understory, canopy, and emergent layers) and have them create the trees, plants and animals that would be found there. Put them all together and create a rainforest in your classroom.

## Science

### **Make it rain in your classroom**

Remember, the Amazon Rainforest receives about nine feet of rain per year. A simple demonstration will show students how rain is formed. If you do this demonstration, please take all necessary precautions to be sure no one gets too close to the hot water.

Materials needed:

Boiling water

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1. If you can boil water in your classroom, do so. If not, bring it in from another room. Please be very careful with this as we want no one to get hurt.
2. Put the boiling water on the hot pad.
3. Hold the tray of ice over the steam from the boiling water and watch what happens!

The steam collects where the air is cool. As more steam reaches the ice, it forms drops of water that will eventually fall, just like rain.

### **Make it rain in your classroom without getting wet**

Imagine what a rainstorm might sound like in the Serengeti during the rainy season. Create an illusion of that in your classroom. Divide the class into five groups. The teacher will first rub both hands together. After a few second delay, the first group of students rubs their hands together. A few more seconds and the next group joins in until all groups are rubbing their hands together. Next the teacher snaps fingers on both hands. The first group then starts snapping fingers. Each group must continue rubbing hands until it is their turn to snap. When all groups are snapping, the teacher starts patting both legs. Go around until all groups are patting their legs. Again, each group must continue snapping until it is their turn to pat their legs. Finally, the teacher stomps both feet on the ground. Each group then stomps their feet in turn until everyone is stomping. Then on a signal from the teacher, everyone claps their hands loudly while continuing to stomp. Everyone in the class claps at the same time. You may clap a few times to represent lightning and a sharp crack of thunder. Then the teacher does each step in reverse with each group following – patting legs, then snapping, then rubbing hands. If done properly, it will sound like a rainstorm comes in and passes by your classroom.

## Your ideas

Go ahead and draw on your knowledge and skills to come up with any other activities. Relate the lasers to something you are teaching in any subject. Who better to come up with activities than you – the teacher!!



TEACHER GUIDE  
GRADES 6 - 8

*LASER SAFARI*

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## Language Skills

### **Parts of Speech**

Make a list of as many adjectives the students can think of to describe the show. Make a list of all the nouns they saw during the performance in person or on the screen. What happened during the show? Make a list of verbs. How did those things happen? Make a list of adverbs. Have a contest to see which student or group of students can come up with the most adjectives or other part of speech to describe the show.

### **Writing**

Write about what happened during the performance. What was their favorite part? What did they like or dislike? What would they have changed? What songs would they have added or taken out? Have the students write an informative article about the performance, an advertisement or brochure for the performance, a critique of the show, a persuasive argument for or against this assembly, etc. Have the students come up with a theme for their own laser show. What would it be? What songs would go with their theme?

### **Word Puzzles**

Give the students graph paper and let them create word searches, crossword puzzles, codes, etc., using words or phrases from the laser show. Then let them trade puzzles with other students to see if they can solve them. As a class, create a giant puzzle on a piece of butcher paper and share it with another class.

### **How Many Words?**

Write an Amazon Rainforest word or Serengeti word on the board. How many words can the students come up with using only those letters?

Example word: *rainforest*

Words from *rainforest*: *rain, forest, fair, air, train, fort, frost, torn, rest, . . .*

## Math

### **Ratios in the Serengeti**

The numbers of wildebeests (1.5 million), gazelles (.5 million), and zebras (.25 million) in the Serengeti were graphed in the assembly. But how many lions, cheetahs, and other carnivores are there? Have students guess first then discuss how there must be far fewer carnivores than herbivores in the same area. Let the students look up how many carnivores there are and make a ratio of carnivores to herbivores.

## **Social Studies**

### **Conservation**

How much do the students know about conservation and preservation of different areas around the world? What is the difference between a nature reserve, a wildlife preserve, a national park, etc? Who created these places and when? What kinds of things are going on in your area to preserve and take care of the earth? Let them search these out and write a brief summary about them.

## **Art and Music**

### **Art skills with music**

Have the students draw a picture of their favorite part of the performance. They can also decide what they would like to include in a laser show and draw that. Or have them think of their favorite song and draw a laser scene from it. Listen to music and have students picture how they could create the music visually. Then have them create it. The movies Fantasia and Fantasia 2000 are excellent examples of this.

## **Science**

### **Reflection**

Reflection is what makes the lasers move around during the laser show. A fun way to learn about reflection of light is to gather several small mirrors and a flashlight. Cover the flashlight with an opaque material with a small hole in it. This will allow only a small beam of light to shine from the flashlight. Have the students try to hit a target with the beam of light. The trick is that they have to reflect the light off of one or more mirrors before hitting the target. How many mirrors can they use and still hit the target? This can be done as a class or in small groups. Throw some math into the mix by having the students measure and calculate angles. Have them plan out a path for the light beam using precise angles and draw it on a piece of paper. Then let them set it up in the classroom and try it. Did they calculate the angles correctly?

### **Create an insect**

Ants and many other insects rare plentiful in the Serengeti and even more so in the Amazon Rainforest. Find out what the students already know about insects by having a group discussion and writing their ideas on the board. They should mention things like three sections of the body, six legs, etc. Then let them research insects. After they have discovered what makes an insect an insect, have the students design their own insects. They must be accurate with sections of the body, number of legs, placement of wings, etc., but let them be as creative as they can. Have them answer questions about their insect like what it eats, how it survives, what might eat it, how it travels, is it a pest or a helpful insect, etc.

### **Animal camouflage**

Animals in both the Serengeti and the Amazon Rainforest rely on camouflage – both predator and prey. Discuss why this is with the students. Then have them create a new form of camouflage – a new pattern on the fur of an animal, a new color for an animal, a new way to blend in to the surrounding environment, etc and have them show how the camouflage will help the animal. Another way to discuss camouflage is to have students create a camouflaged animal without the camouflage – a giraffe with no spots, a brightly colored lion, etc. and show what would happen if the animals were colored this way.

### **Safety**

#### **Precautions**

We take every necessary precaution to ensure everyone's safety during the show. It is not safe to shine any kind of laser directly into the eyes. Permanent damage may result. It is wise not to allow a laser to shine directly on any part of the body either as harmful radiation is emitted from a laser. You may want to emphasize that if lasers are used safely, they can be fun.

### **Your ideas**

Go ahead and draw on your knowledge and skills to come up with any other activities. Relate the lasers to something you are teaching in any subject. Who better to come up with activities than you – the teacher!!