



SCIENCE LASER SPECTACULAR PART 2 STUDENT WORKSHEET MASTERS AND ANSWER KEYS

Dear Assembly Coordinator and Teachers,

The following pages contain student worksheet masters and answer keys. They are to be used in conjunction with Prismatic Magic's Science Laser Spectacular Part 2 assembly and the Science Laser Spectacular Part 2 Teacher Guides located on Prismatic Magic's Web site.

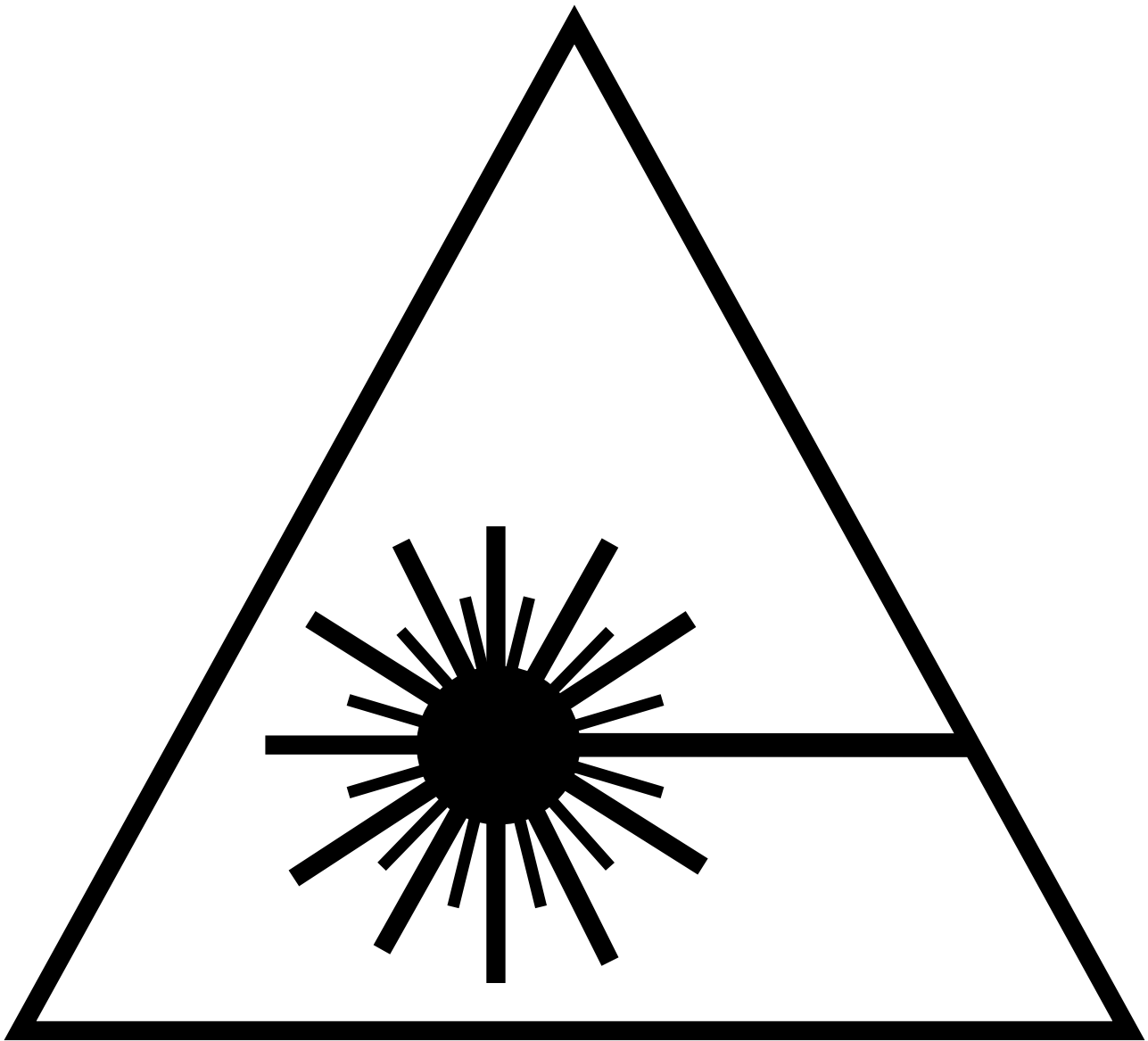
The worksheets are to be given to students **after** Prismatic Magic has presented the assembly at your school. These worksheets are designed to enhance the learning and educational value of the laser assembly.

The worksheets are arranged from simple to advanced with answer keys immediately following each worksheet. Feel free to use any worksheets that you think students will enjoy and be able to complete. We hope you enjoyed the laser program and that you find these worksheets useful.

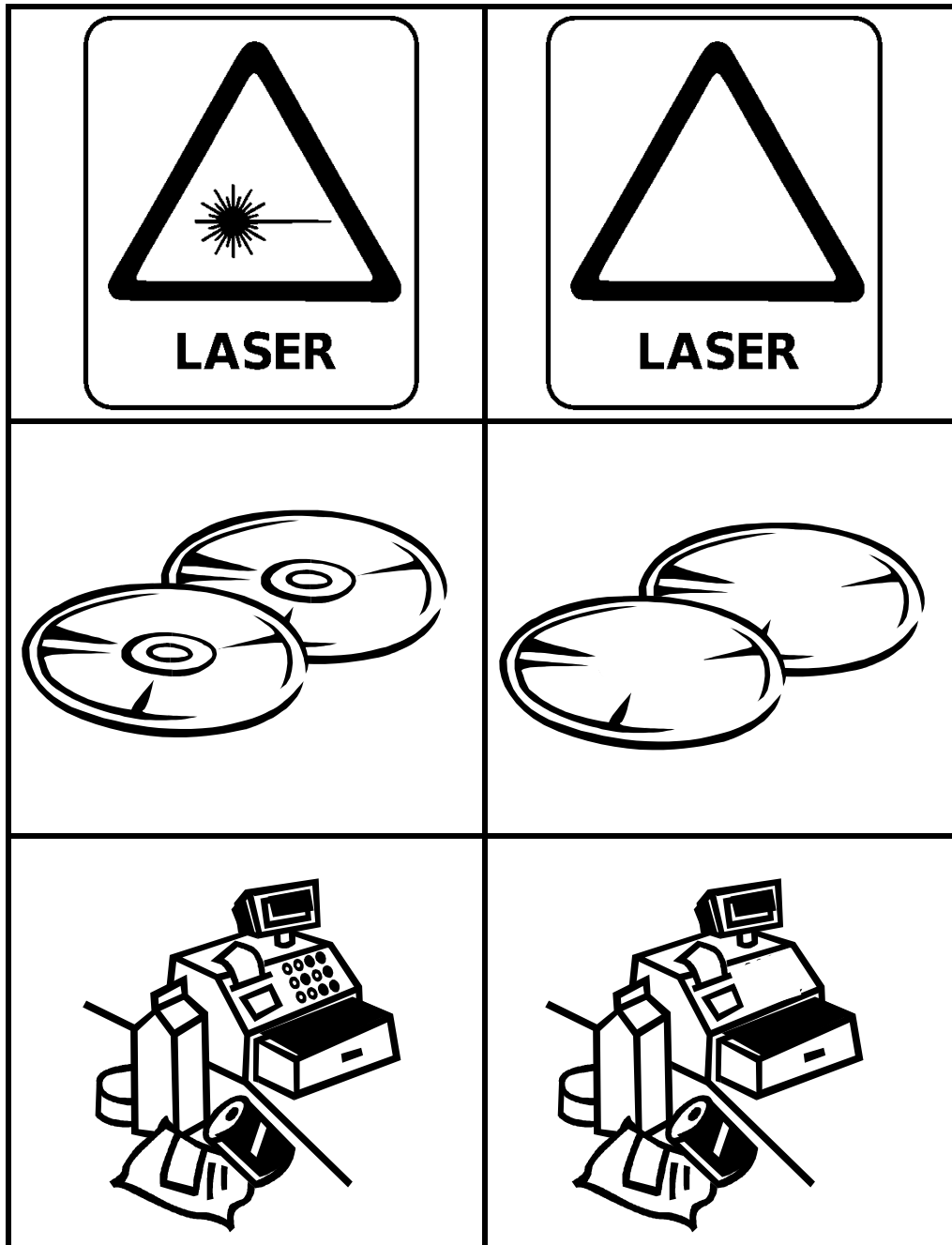
Sincerely,

Your Friends at Prismatic Magic

DIRECTIONS: This sign lets you know a laser is nearby. What do you see inside the triangle? It is a flash of light. Do you see how one of the beams of light goes to the edge of the triangle? That is the laser beam. The inside of the triangle is usually yellow. Color inside the triangle yellow. Now when you see this sign, you will know a laser is being used.

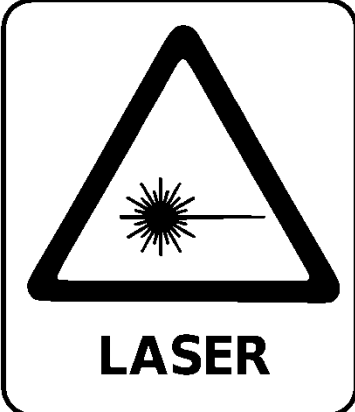
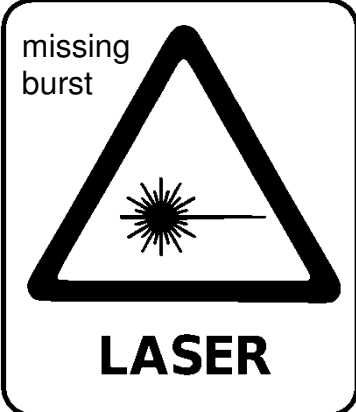
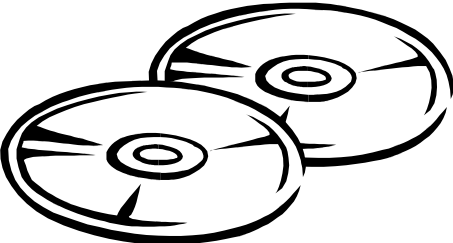
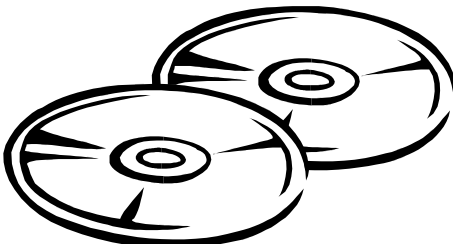
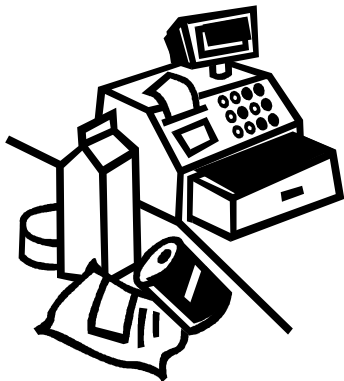
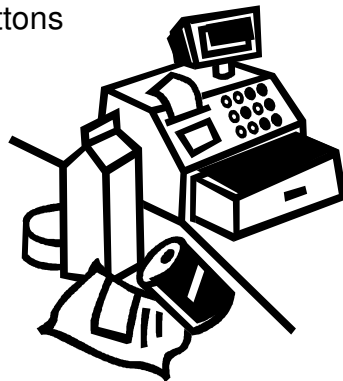


DIRECTIONS: On the left is a picture of something relating to lasers. Draw in what is missing from the picture on the right.

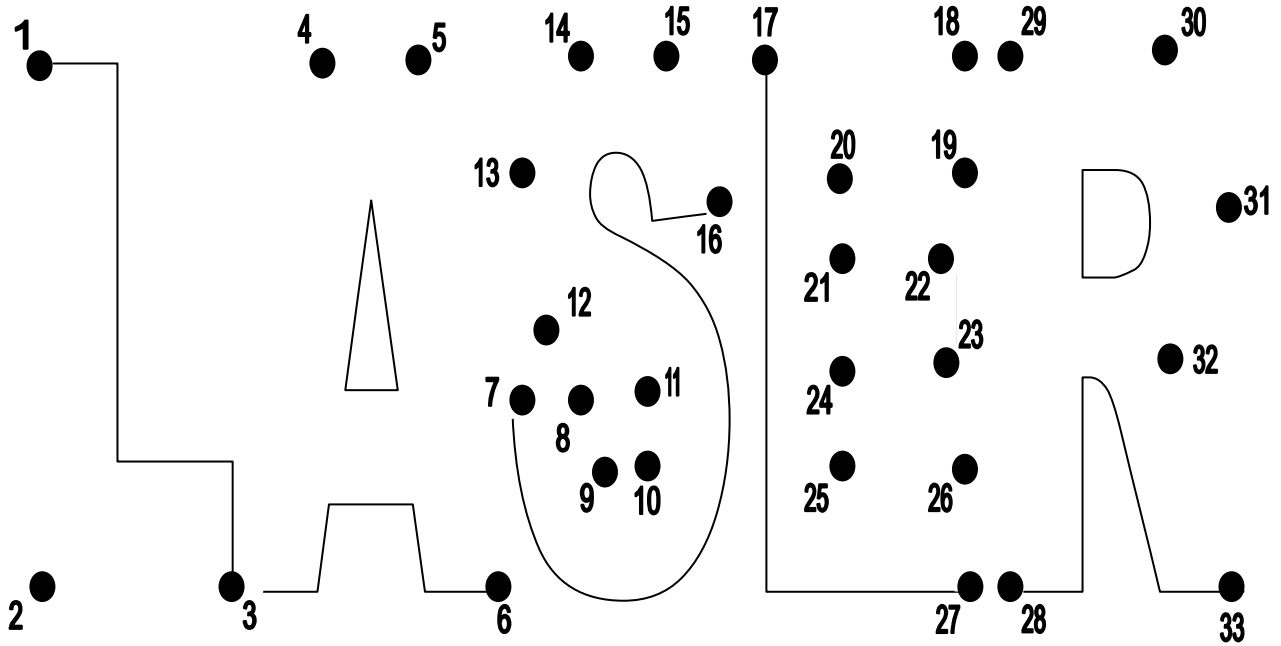


*****TEACHER ANSWER KEY*****

DIRECTIONS: On the left is a picture of something relating to lasers. Draw in what is missing from the picture on the right.

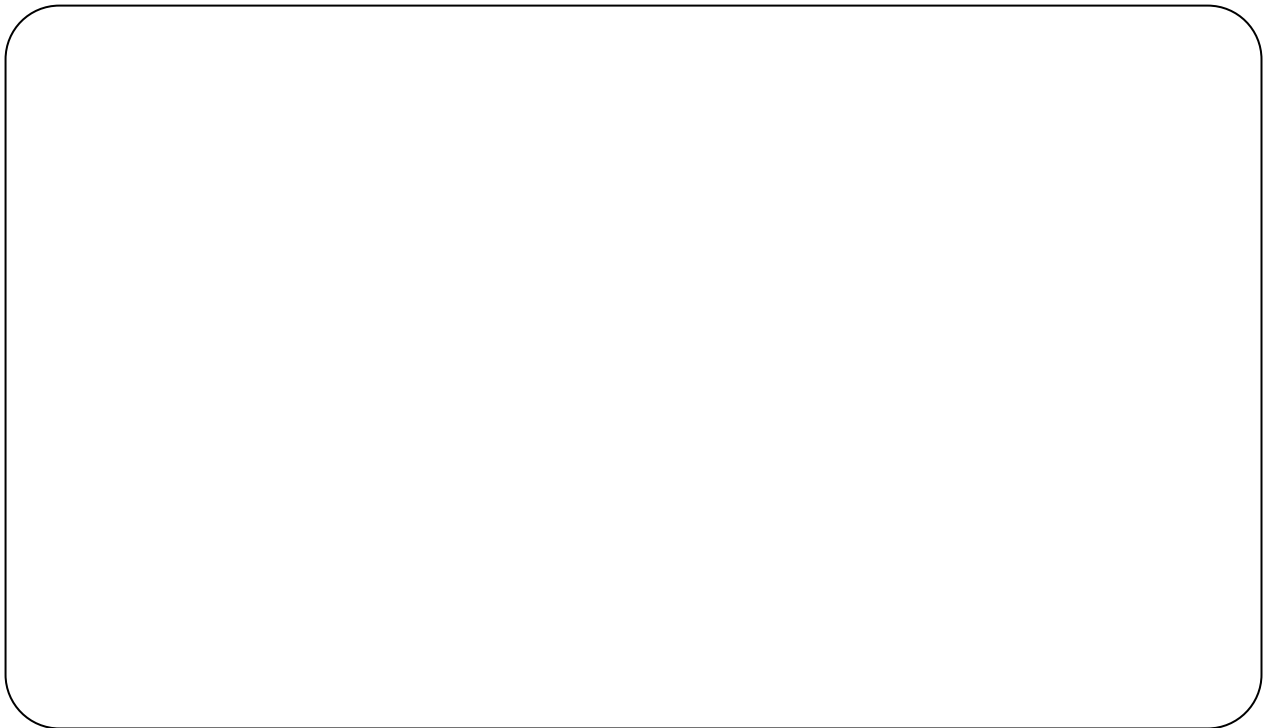
 <p>LASER</p>	<p>missing burst</p>  <p>LASER</p>
	<p>missing holes</p> 
	<p>missing buttons</p> 

DIRECTIONS: Connect the dots in order.

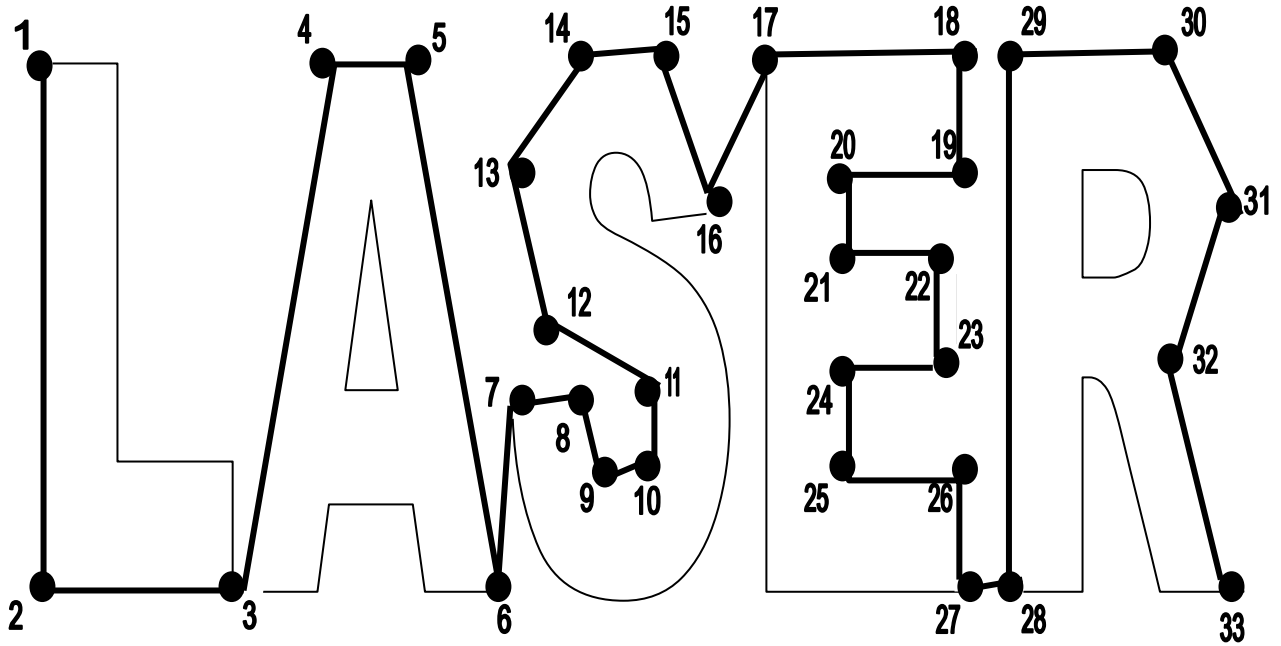


What word did you just make? _____

Draw a picture of your favorite part of the laser program below.

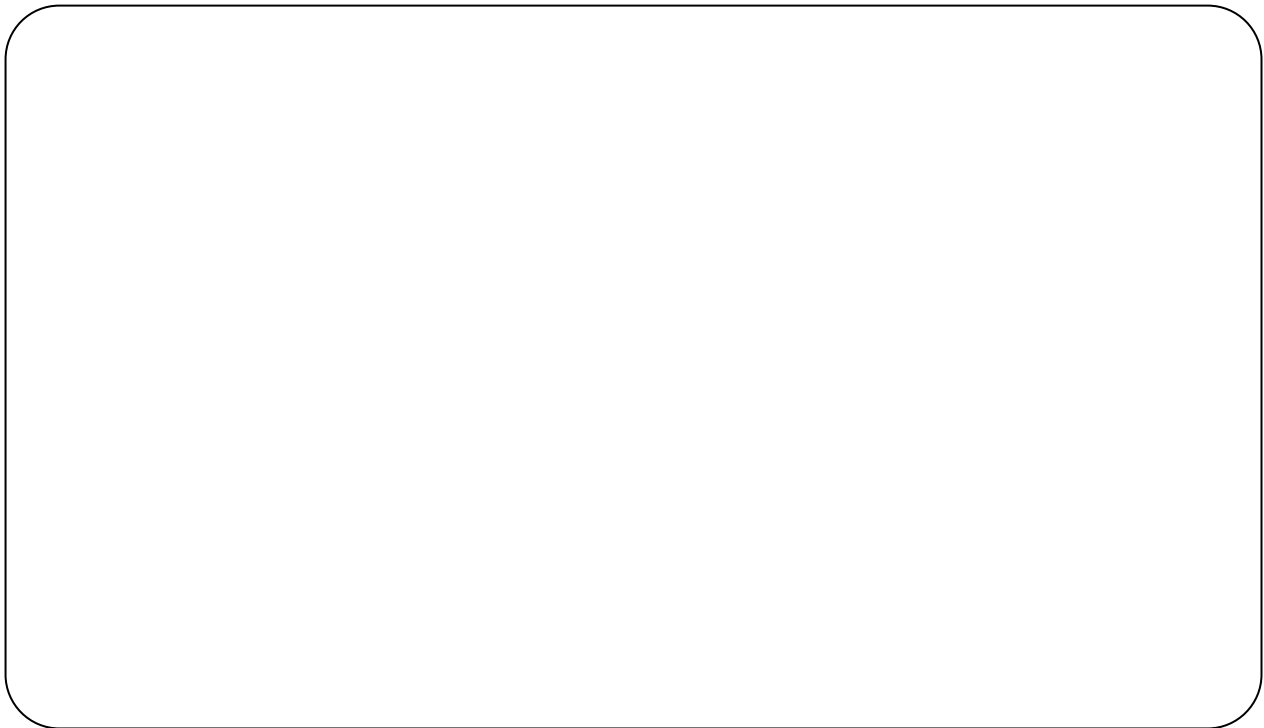


*****TEACHER ANSWER KEY***** DIRECTIONS: Connect the dots in order.

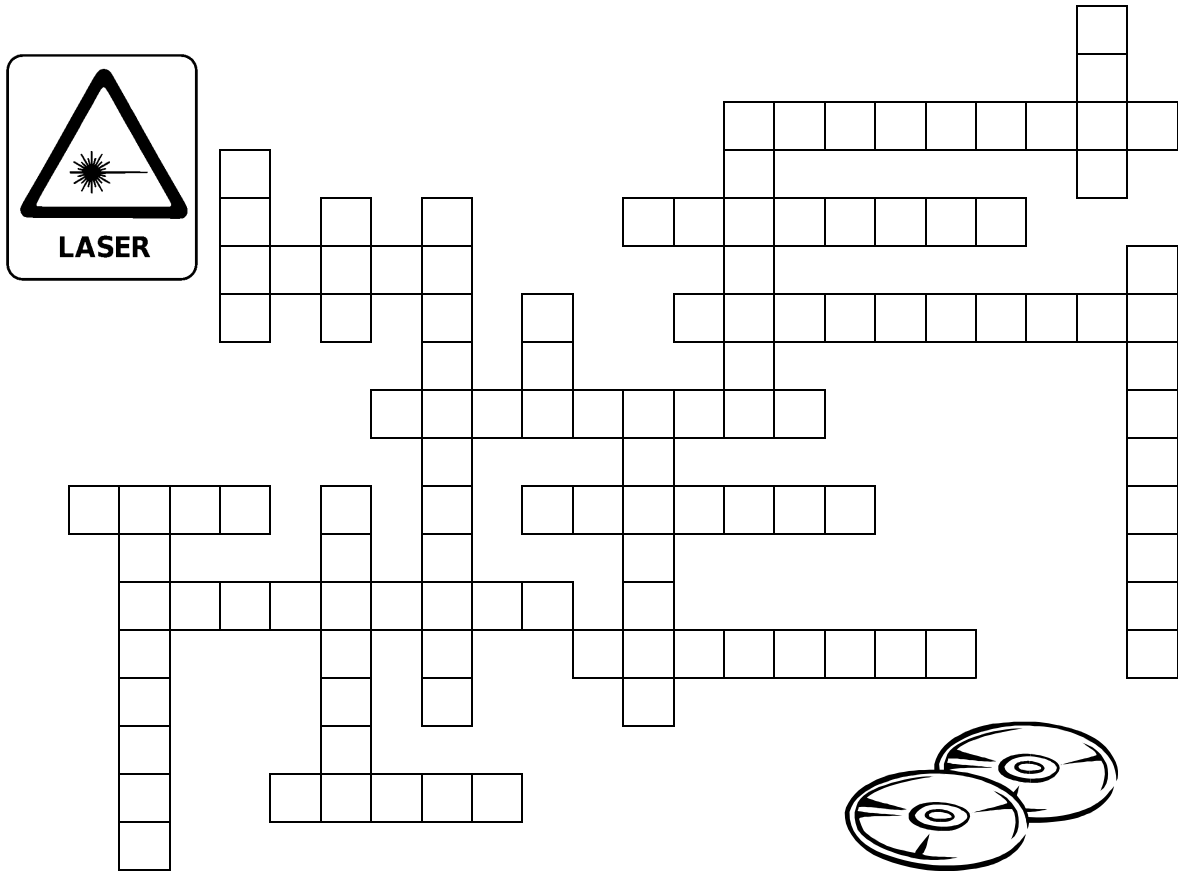


What word did you just make? LASER

Draw a picture of your favorite part of the laser program below.



DIRECTIONS: Lasers are used in many ways and by many different people. See if you can fit the laser words below in the correct spaces. There is only one way each word will fit to finish the entire puzzle so be careful.



3-Letter Words

dvd
cut

4-Letter Words

scan
burn
melt

5-Letter Words

drill
level

7-Letter Words

surgery
cashier
weather
barcode

8-Letter Words

printers
distance
cleaning

9-Letter Words

computers
engraving
measuring
dentistry

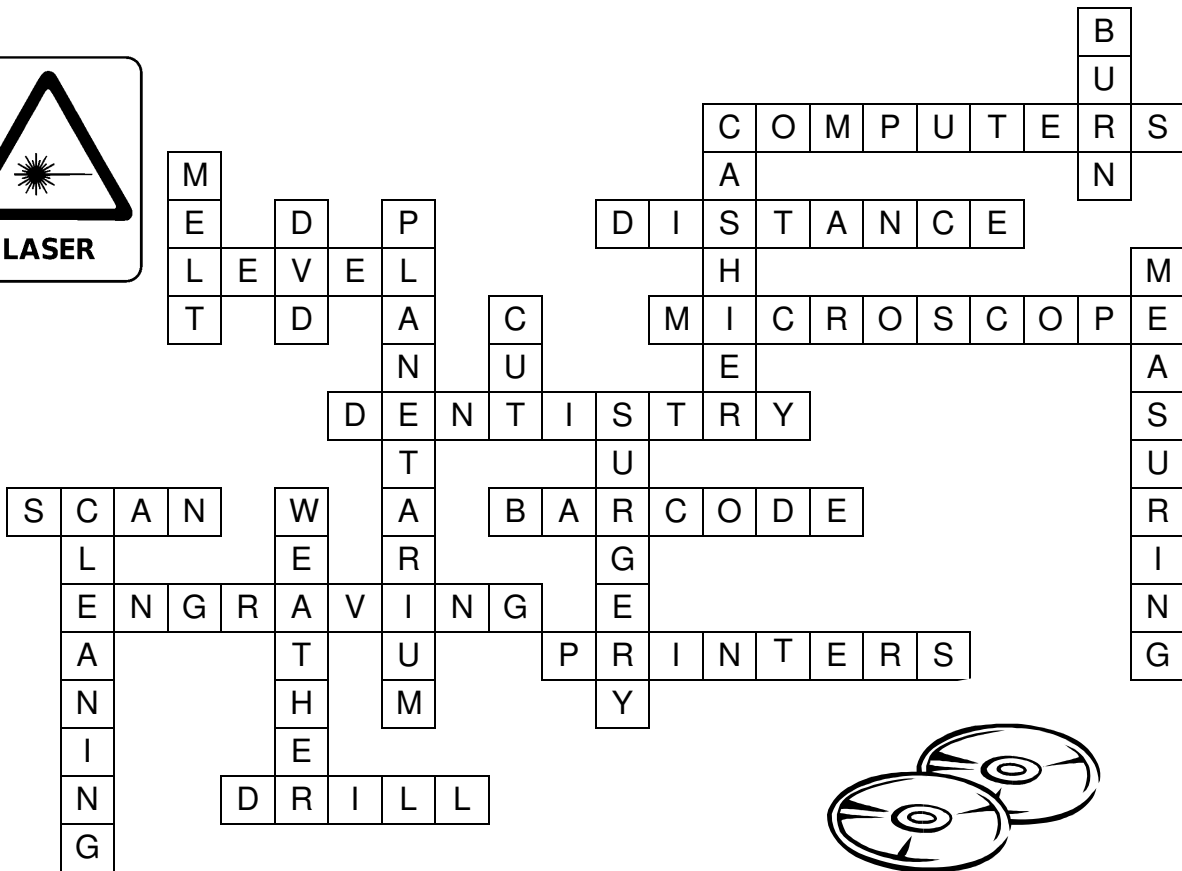
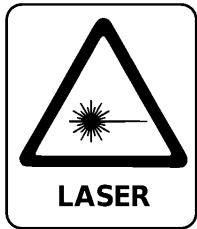
10-Letter Words

microscope

11-Letter Words

planetarium

DIRECTIONS: Lasers are used in many ways and by many different people. See if you can fit the laser words below in the correct spaces. There is only one way each word will fit to finish the entire puzzle so be careful.



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9-Letter Words

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engraving
measuring
dentistry

10-Letter Words

microscope

11-Letter Words

planetarium

DIRECTIONS: Who invented the laser? That's hard to say. Many scientists were involved and they built on previous ideas and experiments. Find the last names of scientists who were some way involved in inventing the laser. We couldn't put everyone on the list, but if you do some research, you can find many more names.

W L I G H M I A T R V A T S N
M I P L A I L H E O F L O E O
I C N I A F T T S B L I I N D
O L M T E N H A R A B Y R W R
S A A R E E B O H T Y S R O O
N C O D R R S T N I M A E T G
H V H F E S J A V A N U H L A
T S O A E N K E I N S T E I N
E R I L W I B H O L O N Y A K
D D E N R L D U K A S T L E R
L M I B A S O L R Z E I G E R
A S A I O P N W U G O F R A D
M F P R O K H O R O V I A T I
B E N N E T T O N L G A S E R

ALFEROV
BASOV
BENNETT
BROSSEL
EINSTEIN
FABRIKANT
GORDON
GOULD

HALL
HAYASHI
HERRIOT
HOLONYAK
JAVAN
KASTLER
LADENBURG
LAMB

MAIMAN
PANISH
PROKHOROV
RETFERD
SCHAWLOW
TOWNES
WINTER
ZEIGER

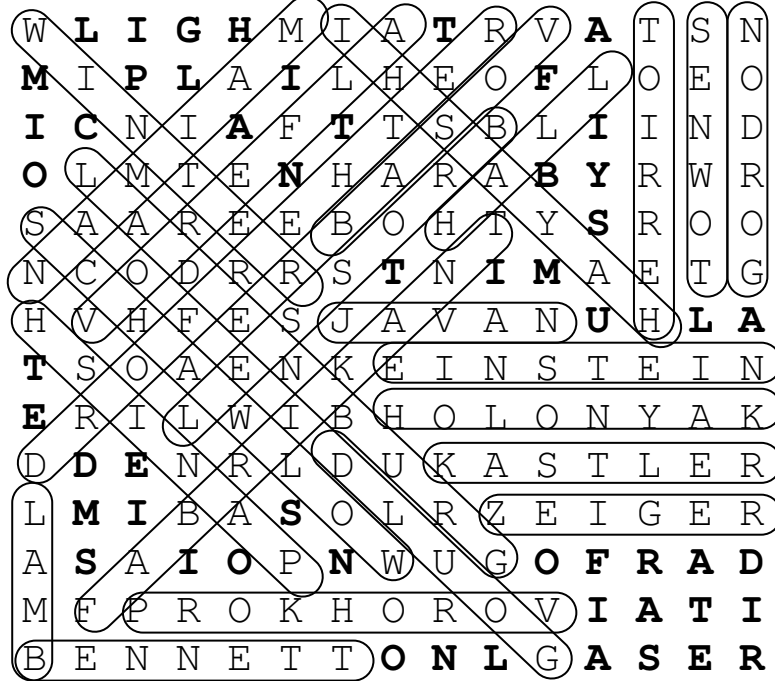
Now find the letters you didn't circle. Put them in order on the lines to get a message.

You could say

but I like to say _____.

*****TEACHER ANSWER KEY*****

DIRECTIONS: Who invented the laser? That's hard to say. Many scientists were involved and they built on previous ideas and experiments. Find the last names of scientists who were some way involved in inventing the laser. We couldn't put everyone on the list, but if you do some research, you can find many more names.



- | | | |
|-----------|-----------|-----------|
| ALFEROV | HALL | MAIMAN |
| BASOV | HAYASHI | PANISH |
| BENNETT | HERRIOT | PROKHOROV |
| BROSSEL | HOLONYAK | RETFERD |
| EINSTEIN | JAVAN | SCHAWLOW |
| FABRIKANT | KASTLER | TOWNES |
| GORDON | LADENBURG | WINTER |
| GOULD | LAMB | ZEIGER |

Now find the letters you didn't circle. Put them in order on the lines to get a message.

You could say

LIGHT **AMPLIFICATION**
 BY **STIMULATED**
 EMISSION **OF** RADIATION
LASER

but I like to say _____.

DIRECTIONS: First, fold the page on the dotted line below. Then fill in each blank space in the grid with the appropriate word. Unfold the page and read the story, filling in the words from the boxes as you go.

1. plural noun	7. plural noun	13. plural noun
2. verb	8. adjective	14. adjective
3. verb	9. adjective	15. past tense verb
4. noun	10. plural noun	16. verb
5. verb	11. plural noun	17. noun
6. adjective	12. adjective	18. adjective

Lasers are being used around the world in so many different ways. Don't believe me? Listen to this. In Japan, 1 are trying to create a solar energy farm in space that would use lasers to 2 the collected energy to the earth. Air pollution is a big problem in China. Engineers there 3 lasers through the 4 to determine what pollutants are present and in what amounts. Most people think lasers cause damage, but in Greece, they are being used to 5 , cleaning years of pollution off the 6 7 of the Acropolis. Stonehenge in England is being scanned by 8 lasers revealing 9 carvings that have worn away through the centuries. In South and Central America, trees, vines and 10 have overgrown many ancient cities. Archaeologists flying over the jungles in specially outfitted 11 can scan through the plants to reveal 12 ruins and details never seen before. Right here in the United States, 13 are learning to destroy 14 viruses with lasers. By matching the resonance frequency of a laser to a virus, the virus is 15 while other cells are unaffected. It's just like an opera singer hitting the exact note that will 16 a glass, but not harm anything else. Americans are also using lasers to create lightning in thunderstorms, a more high-tech process than Benjamin Franklin used when flying a 17 . You can even get your 18 teeth cleaned with a laser these days. Lasers are truly amazing.

*****TEACHER ANSWER KEY*****

DIRECTIONS: First, fold the page on the dotted line below. Then fill in each blank space in the grid with the appropriate word. Unfold the page and read the story, filling in the words from the boxes as you go.

1. plural noun Answers will vary.	7. plural noun	13. plural noun
2. verb	8. adjective	14. adjective
3. verb	9. adjective	15. past tense verb
4. noun	10. plural noun	16. verb
5. verb	11. plural noun	17. noun
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DIRECTIONS: Lasers can be used for many things, but at Prismatic Magic, our favorite way to use lasers is to put on a laser light show. The words Laser, Light and Show have been hidden in the puzzle below many times. See how many you can find.

S T A S H O W O H S H W G
E S H O W W W O H S R A A
L O R G O H W O H S A W T
W A E H I L W S G S O H H
E L S R T L L L E L L L I
O A A E W I I I S I I W I
R S L S R T G G G G O O T
S E A A E H H H H L H I
L R S L S R T T S T T S S
S A E A A E E H H S H O W
S T R S L E R G G G G G O
R H H E A I I R O I I R H
G L E R H L A S E R L L S

How many times did you find LASER? _____

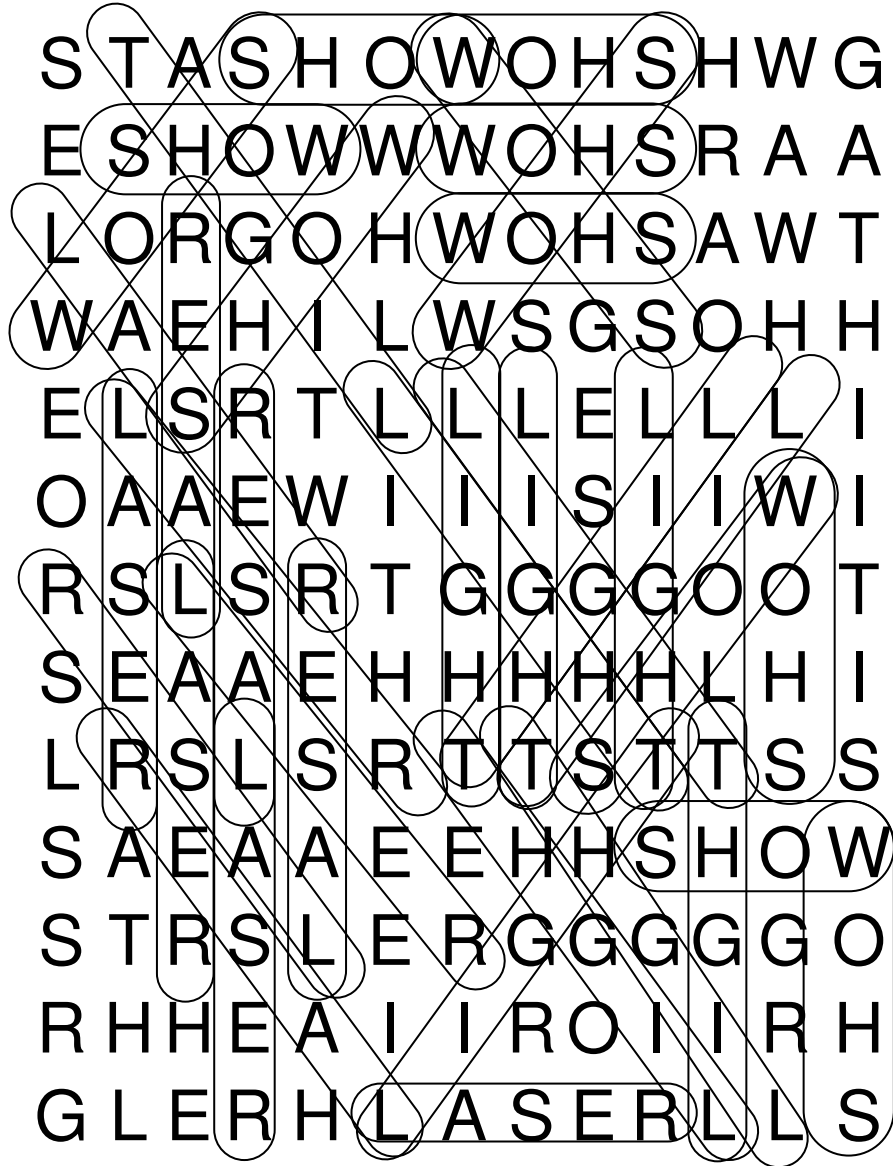
How many times did you find LIGHT? _____

How many times did you find SHOW? _____

(Hint: There should be 37 words total.)

*****TEACHER ANSWER KEY*****

DIRECTIONS: Lasers can be used for many things, but at Prismatic Magic, our favorite way to use lasers is to put on a laser light show. The words Laser, Light and Show have been hidden in the puzzle below many times. See how many you can find.



How many times did you find LASER? 12

How many times did you find LIGHT? 12

How many times did you find SHOW? 13

(Hint: There should be 37 words total.)

Create a Keyboard Picture

Follow the keyboarding directions listed below completely and correctly.

Make sure all page margins are set to 1". Set your font to Courier, size 12, and bold. Make sure you are set on single spacing. Turn on caps lock.

(If you are not sure what to do, ask your teacher to help you get started.)

Now follow the directions very carefully.

1. Push the enter key 4 times.
2. Push the space bar 3 times, push the X key 57 times, then push the enter key once.
3. Space bar 1 time, X key 61 times, enter key once.
4. X key 3 times, space bar 57 times, X key 3 times, enter key once.
5. X 3 times, space 27 times, X 3 times, space 27 times, X 3 times, enter once.
6. X 3 times, space 25 times, X 7 times, space 25 times, X 3 times, enter once.
7. X 3 times, space 24 times, X 9 times, space 24 times, X 3 times, enter once.
8. X 3, space 23, X 5, space 1, X 5, space 23, X 3 times, enter once.
9. X 3, space 22, X 5, space 3, X 5, space 22, X 3 times, enter once.
- (The directions are getting shorter, but you should know what to do. If not, please ask.)
10. X 3, space 21, X 5, space 5, X 5, space 21, X 3 times, enter once.
11. X 3, space 20, X 5, space 7, X 5, space 20, X 3 times, enter once
12. X 3, space 19, X 5, space 9, X 5, space 19, X 3 times, enter once.
13. X 3, space 18, X 5, space 11, X 5, space 18, X 3 times, enter once.
14. X 3, space 17, X 5, space 13, X 5, space 17, X 3 times, enter once
15. X 3, space 16, X 5, space 15, X 5, space 16, X 3 times, enter once
16. X 3, space 15, X 5, space 17, X 5, space 15, X 3 times, enter once
17. X 3, space 14, X 5, space 19, X 5, space 14, X 3 times, enter once
18. X 3, space 13, X 5, space 21, X 5, space 13, X 3 times, enter once
19. X 3, space 12, X 5, space 8, X 1, space 14, X 5, space 12, X 3, enter.
20. X 3, space 11, X 5, space 5, X 1, space 3, X 1, space 3, X 1, space 11, X 5, space 11, X 3, enter.
21. X 3, space 10, X 5, space 3, X 1, space 3, X 1, space 1, X 3, space 1, X 1, space 3, X 1, space 9, X 5, space 10, X 3, enter.
22. X 3, space 9, X 5, space 7, X 1, space 1, X 5, space 1, X 1, space 13, X 5, space 9, X 3, enter.
23. X 3, space 8, X 5, space 4, X 32, space 8, X 3, enter.
24. X 3, space 7, X 5, space 9, X 1, space 1, X 5, space 1, X 1, space 15, X 5, space 7, X 3, enter.
25. X 3, space 6, X 5, space 7, X 1, space 3, X 1, space 1, X 3, space 1, X 1, space 3, X 1, space 13, X 5, space 6, X 3, enter.
26. X 3, space 5, X 5, space 11, X 1, space 3, X 1, space 3, X 1, space 17, X 5, space 5, X 3, enter.
27. X 3, space 4, X 5, space 16, X 1, space 22, X 5, space 4, X 3, enter.
28. X 3, space 3, X 5, space 41, X 5, space 3, X 3, enter.
29. X 3, space 2, X 5, space 43, X 5, space 2, X 3, enter.
30. X 3, space 1, X 55, space 1, X 3, enter.
31. X 3, space 1, X 55, space 1, X 3, enter.
32. X 3, space 3, X 51, space 3, X 3, enter.
33. X 3, space 57, X 3, enter.
34. X 3, space 57, X 3, enter.
35. Space 1, X 61, space 1, enter.
36. Space 3, X 57, space 3.

Now print the page. If you are not sure what the picture is, ask your teacher.

*****TEACHER ANSWER KEY*****

Their picture should look like this – the international symbol for laser.

```
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXX                                                                                   XXX
XXX                                     XXXX                                       XXX
XXX                                 XXXXXXXX                                       XXX
XXX                               XXXXXXXXXX                                       XXX
XXX                             XXXXX  XXXXX                                       XXX
XXX                           XXXXX   XXXXX                                       XXX
XXX                         XXXXX    XXXXX                                       XXX
XXX                       XXXXX     XXXXX                                       XXX
XXX                     XXXXX      XXXXX                                       XXX
XXX                   XXXXX       XXXXX                                       XXX
XXX                 XXXXX        XXXXX                                       XXX
XXX               XXXXX         XXXXX                                       XXX
XXX             XXXXX          XXXXX                                       XXX
XXX           XXXXX           X          XXXXX                                       XXX
XXX         XXXXX      X   X   X          XXXXX                                       XXX
XXX       XXXXX  X   X  XXX  X   X          XXXXX                                       XXX
XXX     XXXXX   X  XXXXX  X          XXXXX                                       XXX
XXX   XXXXX  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXX
XXX  XXXXX  X  XXXXX  X          XXXXX                                       XXX
XXX    XXXXX  X   X  XXX  X   X          XXXXX                                       XXX
XXX      XXXXX  X   X   X          XXXXX                                       XXX
XXX        XXXXX  X          XXXXX                                       XXX
XXX          XXXXX  XXXXX                                       XXX
XXX            XXXXX  XXXXX                                       XXX
XXX              XXXXX  XXXXX                                       XXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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