Park Forest/Chicago Heights
School District 163
Summer Learning Packet

Rising 5th Graders

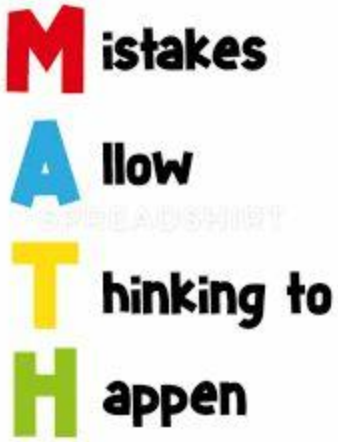
*Please complete this packet during your summer break and turn it in on the first day of school to qualify for the incentive.

Contents include:

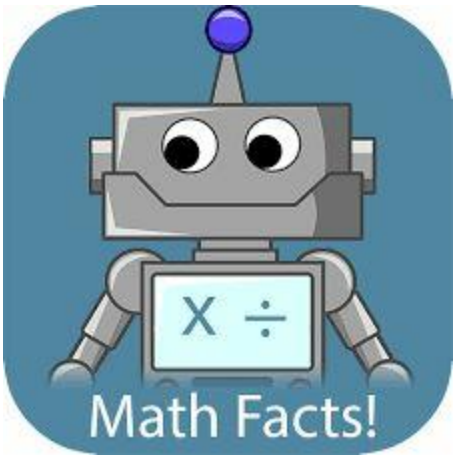
- Math Fluency,
- TTM Requirements,
- Math Activities,
- Reading Log,
- Fish in a Tree Study / Activities,
- Enrichment Activities

Think Through Math Summer Requirements

All students are required to pass their pathway over the summer. Students will use the same login and password information. The expectation is for every student to pass two lessons per week until they complete/pass their summer pathway.



Math Fluency



B Improvement _____ # Correct _____

Multiply or divide.

1	1 x 8 =		23	___ x 8 = 48	
2	2 x 8 =		24	___ x 8 = 80	
3	3 x 8 =		25	___ x 8 = 24	
4	4 x 8 =		26	16 ÷ 8 =	
5	5 x 8 =		27	8 ÷ 1 =	
6	24 ÷ 8 =		28	80 ÷ 8 =	
7	16 ÷ 8 =		29	40 ÷ 8 =	
8	32 ÷ 8 =		30	24 ÷ 8 =	
9	8 ÷ 1 =		31	___ x 8 = 64	
10	40 ÷ 8 =		32	___ x 8 = 32	
11	10 x 8 =		33	___ x 8 = 72	
12	6 x 8 =		34	___ x 8 = 56	
13	7 x 8 =		35	64 ÷ 8 =	
14	8 x 8 =		36	72 ÷8 =	
15	9 x 8 =		37	48 ÷ 8 =	
16	56 ÷ 8 =		38	56 ÷ 8 =	
17	48 ÷ 8 =		39	11 x 8 =	
18	64 ÷ 8 =		40	88 ÷ 8 =	
19	80 ÷ 8 =		41	12 x 8 =	
20	72 ÷8 =		42	96 ÷ 8 =	
21	___ x 8 = 16		43	13 x 8 =	
22	___ x 8 = 40		44	104 ÷ 8 =	

A

Correct _____

Multiply.

1	2 x 3 =		23	8 x 40 =	
2	2 x 30 =		24	80 x 4 =	
3	20 x 3 =		25	9 x 6 =	
4	2 x 2 =		26	90 x 6 =	
5	2 x 20 =		27	2 x 5 =	
6	20 x 2 =		28	2 x 50 =	
7	4 x 2 =		29	3 x 90 =	
8	4 x 20 =		30	40 x 7 =	
9	40 x 2 =		31	5 x 40 =	
10	5 x 3 =		32	6 x 60 =	
11	50 x 3 =		33	70 x 6 =	
12	3 x 50 =		34	8 x 70 =	
13	4 x 4 =		35	80 x 6 =	
14	40 x 4 =		36	9 x 70 =	
15	4 x 40 =		37	50 x 6 =	
16	6 x 3 =		38	8 x 80 =	
17	6 x 30 =		39	9 x 80 =	
18	60 x 3 =		40	60 x 8 =	
19	7 x 5 =		41	70 x 7 =	
20	70 x 5 =		42	5 x 80 =	
21	7 x 50 =		43	60 x 9 =	
22	8 x 4 =		44	9 x 90 =	

Number Correct: _____

A

Divide by 10

1.	20 ÷ 10 =	
2.	30 ÷ 10 =	
3.	40 ÷ 10 =	
4.	80 ÷ 10 =	
5.	50 ÷ 10 =	
6.	90 ÷ 10 =	
7.	70 ÷ 10 =	
8.	60 ÷ 10 =	
9.	10 ÷ 10 =	
10.	100 ÷ 10 =	
11.	20 ÷ 10 =	
12.	120 ÷ 10 =	
13.	50 ÷ 10 =	
14.	150 ÷ 10 =	
15.	80 ÷ 10 =	
16.	180 ÷ 10 =	
17.	280 ÷ 10 =	
18.	380 ÷ 10 =	
19.	680 ÷ 10 =	
20.	640 ÷ 10 =	
21.	870 ÷ 10 =	
22.	430 ÷ 10 =	

23.	50 ÷ 10 =	
24.	850 ÷ 10 =	
25.	1,850 ÷ 10 =	
26.	70 ÷ 10 =	
27.	270 ÷ 10 =	
28.	4,270 ÷ 10 =	
29.	90 ÷ 10 =	
30.	590 ÷ 10 =	
31.	7,590 ÷ 10 =	
32.	120 ÷ 10 =	
33.	1,200 ÷ 10 =	
34.	2,000 ÷ 10 =	
35.	240 ÷ 10 =	
36.	2,400 ÷ 10 =	
37.	4,000 ÷ 10 =	
38.	690 ÷ 10 =	
39.	6,900 ÷ 10 =	
40.	9,000 ÷ 10 =	
41.	940 ÷ 10 =	
42.	5,280 ÷ 10 =	
43.	6,700 ÷ 10 =	
44.	7,000 ÷ 10 =	

A

Correct _____

Write in centimeters.

1	2 m =	cm	23	1 m 2 cm =	cm
2	3 m =	cm	24	1 m 3 cm =	cm
3	4 m =	cm	25	1 m 4 cm =	cm
4	9 m =	cm	26	1 m 7 cm =	cm
5	1 m =	cm	27	2 m 7 cm =	cm
6	7 m =	cm	28	3 m 7 cm =	cm
7	5 m =	cm	29	8 m 7 cm =	cm
8	8 m =	cm	30	8 m 4 cm =	cm
9	6 m =	cm	31	4 m 9 cm =	cm
10	1 m 20 cm =	cm	32	6 m 8 cm =	cm
11	1 m 30 cm =	cm	33	9 m 3 cm =	cm
12	1 m 40 cm =	cm	34	2 m 60 cm =	cm
13	1 m 90 cm =	cm	35	3 m 75 cm =	cm
14	1 m 95 cm =	cm	36	6 m 33 cm =	cm
15	1 m 85 cm =	cm	37	8 m 9 cm =	cm
16	1 m 84 cm =	cm	38	4 m 70 cm =	cm
17	1 m 73 cm =	cm	39	7 m 35 cm =	cm
18	1 m 62 cm =	cm	40	4 m 17 cm =	cm
19	2 m 62 cm =	cm	41	6 m 4 cm =	cm
20	7 m 62 cm =	cm	42	10 m 4 cm =	cm
21	5 m 27 cm =	cm	43	10 m 40 cm =	cm
22	3 m 87 cm =	cm	44	11 m 84 cm =	cm

A

Correct _____

Find the missing numerator or denominator.

1	$\frac{1}{2} = \frac{\_}{4}$		23	$\frac{1}{3} = \frac{\_}{12}$	
2	$\frac{1}{5} = \frac{2}{\_}$		24	$\frac{2}{3} = \frac{\_}{12}$	
3	$\frac{2}{5} = \frac{\_}{10}$		25	$\frac{8}{12} = \frac{\_}{3}$	
4	$\frac{3}{5} = \frac{\_}{10}$		26	$\frac{12}{16} = \frac{3}{\_}$	
5	$\frac{4}{5} = \frac{\_}{10}$		27	$\frac{3}{5} = \frac{\_}{25}$	
6	$\frac{1}{3} = \frac{2}{\_}$		28	$\frac{4}{5} = \frac{28}{\_}$	
7	$\frac{2}{3} = \frac{\_}{6}$		29	$\frac{18}{24} = \frac{3}{\_}$	
8	$\frac{1}{3} = \frac{3}{\_}$		30	$\frac{24}{30} = \frac{\_}{5}$	
9	$\frac{2}{3} = \frac{\_}{9}$		31	$\frac{5}{6} = \frac{35}{\_}$	
10	$\frac{1}{4} = \frac{\_}{8}$		32	$\frac{56}{63} = \frac{\_}{9}$	
11	$\frac{3}{4} = \frac{\_}{8}$		33	$\frac{64}{72} = \frac{8}{\_}$	
12	$\frac{1}{4} = \frac{3}{\_}$		34	$\frac{5}{8} = \frac{\_}{64}$	
13	$\frac{3}{4} = \frac{9}{\_}$		35	$\frac{5}{6} = \frac{45}{\_}$	
14	$\frac{2}{4} = \frac{\_}{2}$		36	$\frac{45}{81} = \frac{\_}{9}$	
15	$\frac{2}{6} = \frac{1}{\_}$		37	$\frac{6}{7} = \frac{48}{\_}$	
16	$\frac{2}{10} = \frac{1}{\_}$		38	$\frac{36}{81} = \frac{\_}{9}$	
17	$\frac{4}{10} = \frac{\_}{5}$		39	$\frac{8}{56} = \frac{1}{\_}$	
18	$\frac{8}{10} = \frac{\_}{5}$		40	$\frac{35}{63} = \frac{5}{\_}$	
19	$\frac{3}{9} = \frac{\_}{3}$		41	$\frac{1}{6} = \frac{12}{\_}$	
20	$\frac{6}{9} = \frac{\_}{3}$		42	$\frac{3}{7} = \frac{36}{\_}$	
21	$\frac{3}{12} = \frac{1}{\_}$		43	$\frac{48}{60} = \frac{4}{\_}$	
22	$\frac{9}{12} = \frac{\_}{4}$		44	$\frac{72}{84} = \frac{\_}{7}$	

find the missing numerator or denominator

A

Correct _____

Divide.

1	1 ÷ 1 =		23	5 ÷ 0.1 =	
2	1 ÷ 0.1 =		24	0.5 ÷ 0.1 =	
3	2 ÷ 0.1 =		25	0.05 ÷ 0.1 =	
4	7 ÷ 0.1 =		26	0.08 ÷ 0.1 =	
5	1 ÷ 0.1 =		27	4 ÷ 0.01 =	
6	10 ÷ 0.1 =		28	40 ÷ 0.01 =	
7	20 ÷ 0.1 =		29	47 ÷ 0.01 =	
8	60 ÷ 0.1 =		30	59 ÷ 0.01 =	
9	1 ÷ 1 =		31	3 ÷ 0.1 =	
10	1 ÷ 0.1 =		32	30 ÷ 0.1 =	
11	10 ÷ 0.1 =		33	32 ÷ 0.1 =	
12	100 ÷ 0.1 =		34	32.5 ÷ 0.1 =	
13	200 ÷ 0.1 =		35	25 ÷ 5 =	
14	800 ÷ 0.1 =		36	2.5 ÷ 0.5 =	
15	1 ÷ 0.1 =		37	2.5 ÷ 0.05 =	
16	1 ÷ 0.01 =		38	3.6 ÷ 0.04 =	
17	2 ÷ 0.01 =		39	32 ÷ 0.08 =	
18	9 ÷ 0.01 =		40	56 ÷ 0.7 =	
19	5 ÷ 0.01 =		41	77 ÷ 1.1 =	
20	50 ÷ 0.01 =		42	4.8 ÷ 0.12 =	
21	60 ÷ 0.01 =		43	4.84 ÷ 0.4 =	
22	20 ÷ 0.01 =		44	9.63 ÷ 0.03 =	

A

Correct _____

Multiply, but don't simplify.

1	$\frac{1}{2} \times \frac{1}{2} =$		23	$\frac{2}{5} \times \frac{5}{3} =$	
2	$\frac{1}{2} \times \frac{1}{3} =$		24	$\frac{3}{5} \times \frac{5}{2} =$	
3	$\frac{1}{2} \times \frac{1}{4} =$		25	$\frac{1}{3} \times \frac{1}{3} =$	
4	$\frac{1}{2} \times \frac{1}{7} =$		26	$\frac{1}{3} \times \frac{2}{3} =$	
5	$\frac{1}{7} \times \frac{1}{2} =$		27	$\frac{2}{3} \times \frac{2}{3} =$	
6	$\frac{1}{3} \times \frac{1}{2} =$		28	$\frac{2}{3} \times \frac{3}{2} =$	
7	$\frac{1}{3} \times \frac{1}{3} =$		29	$\frac{2}{3} \times \frac{4}{3} =$	
8	$\frac{1}{3} \times \frac{1}{6} =$		30	$\frac{2}{3} \times \frac{5}{3} =$	
9	$\frac{1}{3} \times \frac{1}{5} =$		31	$\frac{3}{2} \times \frac{3}{5} =$	
10	$\frac{1}{5} \times \frac{1}{3} =$		32	$\frac{3}{4} \times \frac{1}{5} =$	
11	$\frac{1}{5} \times \frac{2}{3} =$		33	$\frac{3}{4} \times \frac{4}{5} =$	
12	$\frac{2}{5} \times \frac{2}{3} =$		34	$\frac{3}{4} \times \frac{5}{5} =$	
13	$\frac{1}{4} \times \frac{1}{3} =$		35	$\frac{3}{4} \times \frac{6}{5} =$	
14	$\frac{1}{4} \times \frac{2}{3} =$		36	$\frac{1}{4} \times \frac{6}{5} =$	
15	$\frac{3}{4} \times \frac{2}{3} =$		37	$\frac{1}{7} \times \frac{1}{7} =$	
16	$\frac{1}{6} \times \frac{1}{3} =$		38	$\frac{1}{8} \times \frac{3}{5} =$	
17	$\frac{5}{6} \times \frac{1}{3} =$		39	$\frac{5}{6} \times \frac{1}{4} =$	
18	$\frac{5}{6} \times \frac{2}{3} =$		40	$\frac{3}{4} \times \frac{3}{4} =$	
19	$\frac{5}{4} \times \frac{2}{3} =$		41	$\frac{2}{3} \times \frac{6}{6} =$	
20	$\frac{1}{5} \times \frac{1}{5} =$		42	$\frac{3}{4} \times \frac{6}{2} =$	
21	$\frac{2}{5} \times \frac{2}{5} =$		43	$\frac{7}{8} \times \frac{7}{9} =$	
22	$\frac{2}{5} \times \frac{3}{5} =$		44	$\frac{7}{12} \times \frac{9}{8} =$	

Number Correct: _____

A

Make Larger Units

1.	$\frac{2}{4} =$	
2.	$\frac{2}{6} =$	
3.	$\frac{2}{8} =$	
4.	$\frac{5}{10} =$	
5.	$\frac{5}{15} =$	
6.	$\frac{5}{20} =$	
7.	$\frac{4}{8} =$	
8.	$\frac{4}{12} =$	
9.	$\frac{4}{16} =$	
10.	$\frac{3}{6} =$	
11.	$\frac{3}{9} =$	
12.	$\frac{3}{12} =$	
13.	$\frac{4}{6} =$	
14.	$\frac{6}{12} =$	
15.	$\frac{6}{18} =$	
16.	$\frac{6}{30} =$	
17.	$\frac{6}{9} =$	
18.	$\frac{7}{14} =$	
19.	$\frac{7}{21} =$	
20.	$\frac{7}{42} =$	
21.	$\frac{8}{12} =$	
22.	$\frac{9}{18} =$	

23.	$\frac{9}{27} =$	
24.	$\frac{9}{63} =$	
25.	$\frac{8}{12} =$	
26.	$\frac{8}{16} =$	
27.	$\frac{8}{24} =$	
28.	$\frac{8}{64} =$	
29.	$\frac{12}{18} =$	
30.	$\frac{12}{16} =$	
31.	$\frac{9}{12} =$	
32.	$\frac{6}{8} =$	
33.	$\frac{10}{12} =$	
34.	$\frac{15}{18} =$	
35.	$\frac{8}{10} =$	
36.	$\frac{16}{20} =$	
37.	$\frac{12}{15} =$	
38.	$\frac{18}{27} =$	
39.	$\frac{27}{36} =$	
40.	$\frac{32}{40} =$	
41.	$\frac{45}{54} =$	
42.	$\frac{24}{36} =$	
43.	$\frac{60}{72} =$	
44.	$\frac{48}{60} =$	

Math Worksheets

The following pages will help you prepare for 5th grade math by reviewing concepts you studied during 4th grade. Please use these helpful websites for further information on each skill and the information on the next page.

https://www.khanacademy.org

http://www.mathchimp.com

https://www.mathmammoth.com

https://www.schooltube.com

Name Date

EXPANDED FORM TO 1 MILLION SHEET 1

Write down these numbers in expanded form.

1) 240,628 = 2 hundred thousands + 4 ten thousands + 6 hundreds + 2 tens + 8 ones

2) 72,093 =

3) 8,972 =

4) 302,176 =

5) 79,403 =

6) 279,560 =

7) 67,038 =

8) 837,043 =

9) 7,384 =

10) 170,084 =

Name Date

PLACE VALUE TO 10 MILLION SHEET 1

1) Write the place value of the underlined digit under each of the numbers.

827,573	7,283,106	428,329	1,827,376	428,291
500				

5,293,119	297,283	541,294	3,419,396	2,391,574

2) Write these numbers in expanded form.

328,574 = 300,000 + 20,000 + 8,000 + 500 + 70 + 4
108,294 =
2,384,375 =
8,290,918 =

3) Write these numbers in standard form.

100,000 + 30,000 + 500 + 80 + 2 = 130,582
800,000 + 4,000 + 600 + 90 + 5 =
1,000,000 + 400,000 + 9,000 + 400 + 50 + 3 =
2,000,000 + 600,000 + 50,000 + 8,000 + 70 + 4 =
6,000,000 + 900,000 + 4,000 + 200 + 80 +7 =

4) Fill in the missing parts in these numbers

1,327,582 = ____ millions ____ thousands ____ hundreds ____ tens ____ ones
5,038,214 = ____ millions ____ thousands ____ hundreds ____ tens ____ ones
4,795,634 = ____ millions ____ thousands ____ hundreds ____ tens ____ ones

Name Date

ORDER OF OPERATIONS SHEET 5:1

Remember the correct order:

Parentheses	Exponents	Multiplication & Division	Addition & Subtraction

1) $(4 + 3) \times 2 = 14$
   $7 \quad \times 2$

2) $4 + (3 \times 2) =$

3) $(2 + 3) \times 5 =$

4) $2 + (3 \times 5) =$

5) $(8 - 3) \times 2 =$

6) $8 - (3 \times 2) =$

7) $(4 + 2) \times 3 =$

8) $4 + (2 \times 3) =$

9) $5 \times 3 + 4 =$

10) $5 + 3 \times 4 =$

11) $10 \div 2 + 3 =$

12) $10 - 6 \div 2 =$

13) $(4 + 7) \times 3 =$

14) $4 + 7 \times 3 =$

15) $10 - 3 \times 2 =$

16) $(10 - 3) \times 2 =$

17) $5 + 2 \times 4 =$

18) $7 \times 2 - 5 =$

19) $14 - 3 \times 3 =$

20) $8 + (3 \times 5) =$

21) $6 \times 3 - 7 =$

22) $12 \div 2 + 4 =$

23) $9 - 7 + 6 =$

24) $9 - (7 + 6) =$

Name Date

USING EXPONENTS SHEET 5:1

Work out these exponents - remember the exponent is the number of times you need to multiply the number by itself.

Examples:

$5^2 = 5 \times 5 = 25$ *$2^4 = 2 \times 2 \times 2 \times 2 = 16$* *$10^3 = 10 \times 10 \times 10 = 1000$*

1) $3^2 = 3 \times 3 =$ ___ 2) $2^3 = 2 \times 2 \times 2 =$ ___ 3) $6^2 = 6 \times 6 =$ ___

4) $9^2 =$ __ x __ = ___ 5) $3^3 =$ __ x __ x __ = ___ 6) $7^2 =$ __ x __ = ___

Use a calculator to work out these exponents below:

7) $4^3 =$ __ x __ x __ = ____ 8) $2^5 =$ __ x __ x __ x__ x__ = ____

9) $5^4 =$ __ x __ x __ x __ = ____ 10) $9^3 =$ __ x __ x __ = ____

11) $3^5 =$ _____ 12) $7^4 =$ _____ 13) $10^5 =$ _____

14) $2^7 =$ _____ 15) $9^5 =$ _____ 16) $16^3 =$ _____

17) $6^1 =$ _____ 18) $5^6 =$ _____ 19) $78^2 =$ _____

Work out these exponents, then put them in order, from smallest to largest.

5^6 2^9 6^4 9^3 10^4 7^5

_____ _____ _____ _____ _____ _____

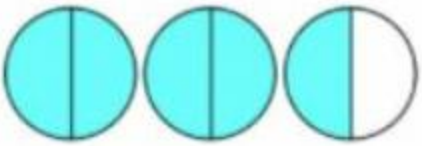
Smallest Largest

Name Date

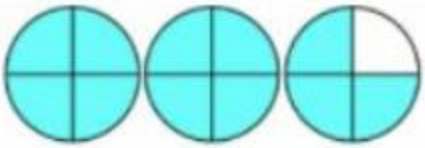
MIXED NUMBER TO IMPROPER FRACTION SHEET 1

Use the fraction diagrams to work out the improper fraction.

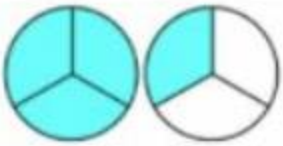
The first one has been done for you.

1) 

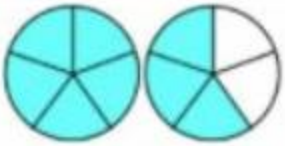
$2\frac{1}{2} = \frac{5}{2}$

2) 

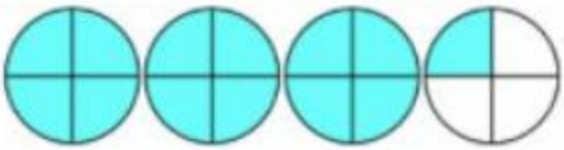
$2\frac{3}{4} = \frac{\quad}{4}$

3) 

$1\frac{1}{3} = \frac{\quad}{3}$

4) 

$1\frac{3}{5} = \frac{\quad}{5}$

5) 

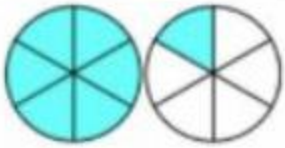
$3\frac{1}{4} = \frac{\quad}{4}$

6) 

$2\frac{2}{3} = \frac{\quad}{\quad}$

7) 

$2\frac{2}{5} = \frac{\quad}{\quad}$

8) 

$1\frac{1}{6} = \frac{\quad}{\quad}$

9) 

$2\frac{3}{8} = \frac{\quad}{\quad}$

10) 

$2\frac{5}{6} = \frac{\quad}{\quad}$

Name Date

COMPARING FRACTIONS SHEET 3

Use the correct symbol >, < or = to show how the fractions compare.

1) $\frac{1}{6}$ ☐ $\frac{1}{10}$

2) $\frac{2}{3}$ ☐ $\frac{1}{2}$

3) $\frac{7}{12}$ ☐ $\frac{3}{4}$

4) $\frac{3}{5}$ ☐ $\frac{11}{15}$

5) $\frac{1}{6}$ ☐ $\frac{2}{12}$

6) $\frac{3}{7}$ ☐ $\frac{1}{2}$

7) $\frac{6}{8}$ ☐ $\frac{3}{4}$

8) $\frac{5}{7}$ ☐ $\frac{5}{8}$

9) $\frac{1}{5}$ ☐ $\frac{3}{10}$

10) $\frac{7}{12}$ ☐ $\frac{3}{4}$

11) $\frac{4}{5}$ ☐ $\frac{8}{10}$

12) $\frac{5}{9}$ ☐ $\frac{2}{3}$

13) $\frac{2}{9}$ ☐ $\frac{3}{7}$

14) $\frac{5}{8}$ ☐ $\frac{3}{10}$

15) $\frac{7}{12}$ ☐ $\frac{3}{4}$

16) $\frac{6}{15}$ ☐ $\frac{2}{5}$

17) $\frac{9}{10}$ ☐ $\frac{3}{4}$

18) $\frac{5}{6}$ ☐ $\frac{11}{12}$

19) $\frac{3}{8}$ ☐ $\frac{3}{7}$

20) $\frac{5}{11}$ ☐ $\frac{3}{5}$

21) $\frac{6}{9}$ ☐ $\frac{2}{3}$

22) $\frac{1}{5}$ ☐ $\frac{2}{11}$

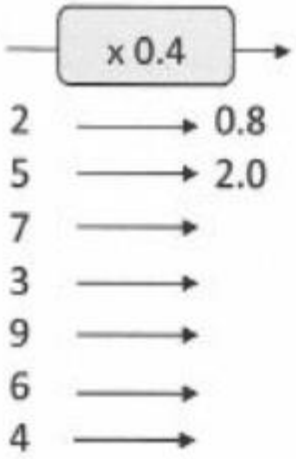
23) $\frac{7}{9}$ ☐ $\frac{3}{5}$

24) $\frac{2}{7}$ ☐ $\frac{4}{11}$

MULTIPLYING BY TENTHS SHEET 1

Have a look at these number machines and use your multiplication knowledge to fill in the missing numbers. Remember if 3 x 4 = 12, then 0.3 x 4 = 1.2 and 3 x 0.4 = 1.2

1)



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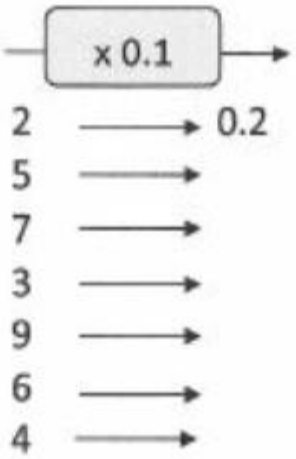

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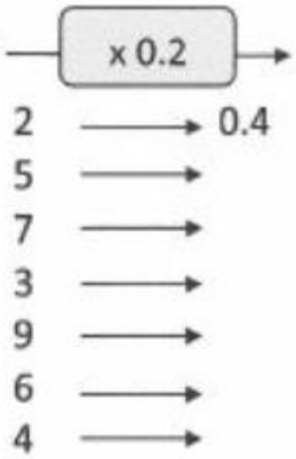

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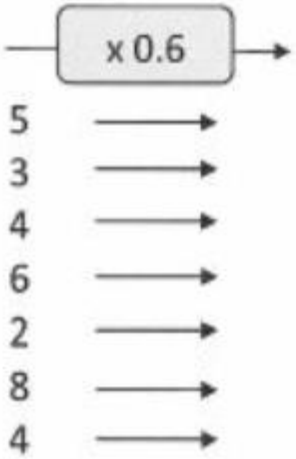

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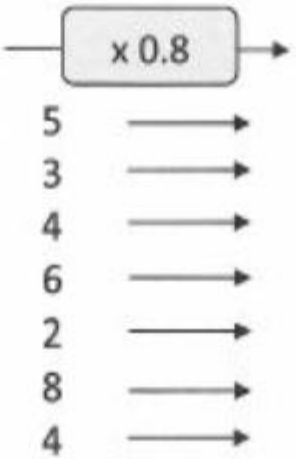

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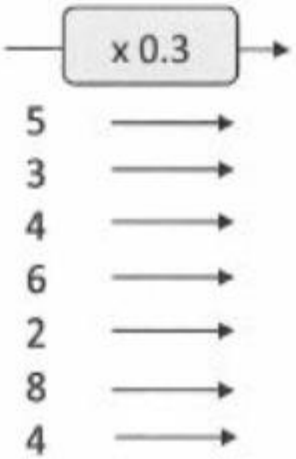

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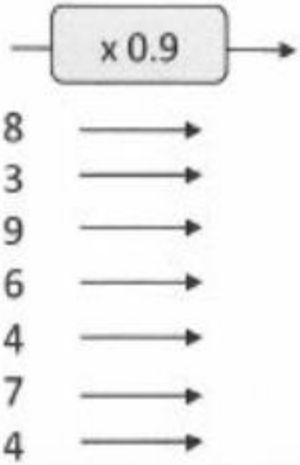

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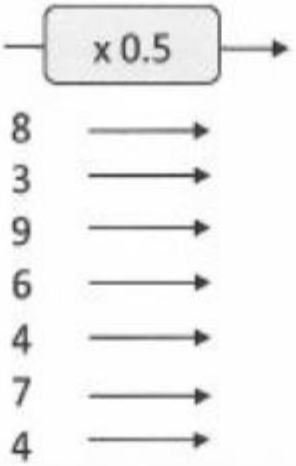

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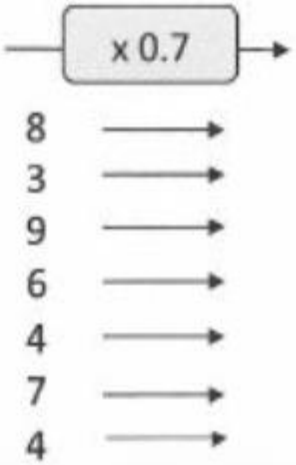

MENTAL MATH QUIZ 5:2

1)	Find ¾ of $32.	
2)	1 – 0.92	
3)	Find the value of $(x - 6)/3$ if $x = 21$.	
4)	10 x 4 = 26 + ___	
5)	Round 6.283 to 1dp	
6)	What is the missing number? 7.3 ____ 8.1 8.5 8.9	
7)	What 3d shape is this the net for? 	
8)	How many faces does a triangular prism have?	
9)	In a group of children, $\frac{3}{5}$ like to play tennis. If there are 25 children, how many do not like tennis?	
10)	Timmy and Tommy are two boys whose ages add up to 23. Timmy is 5 years older than Tommy. How old are they?	
11)	How many inches on the ruler? 	
12)	What is the **mean** of 13, 7, 8 and 4?	
13)	Which is the **smallest**? 0.37 0.194 0.6 0.473 0.29	
14)	$3\frac{2}{5} + 2\frac{1}{5}$	
15)	How much is half of a fourth?	
16)	A rectangular swimming pool measures 5 ½ meters by 3 ½ meters. What is the **perimeter**?	
17)	What do angles around a point add up to?	
18)	The **ratio** of lions to tigers in a zoo is 1:3. If there are 4 lions, how many tigers will there be?	

Reading Log Directions

Summer is approximately 12 weeks long. You should be reading every day and as much as possible. Your reading log is 6 pages in this packet. I expect one page to be filled out every 2 weeks. The questions I am asking you are thoughtful and higher level. Please think about your answers and write with as many details from your book as possible. All 6 pages of this log should be filled out by the first day of school.

Reading Log

Please complete one entry for each reading check-in. An entry is likely to be about multiple chapters of your book.

Questions for Reviewer's Notes (choose one question per entry to respond to)

- *The most interesting/funniest/scariest scene was … because …*
- *A connection between this part of the book and what we are studying at school is … which helps me understand that …*
- *This part of the book reminds me of (other text, movie) because … which helps me understand that …*
- *A character I identify with/don't understand is … because …*
- *Something I learned about the world by reading this book is … which seems important because …*

Title and pages this entry refers to	Plot/Topic Tracker *Briefly explain* • *What happened in the book (fiction)* • *What topic/information is discussed (informational text)*	Reviewer's Notes *Use one of the questions above*
Title and pages this entry refers to	Plot/Topic Tracker *Briefly explain* • *What happened in the book (fiction)* • *What topic/information is discussed (informational text)*	Reviewer's Notes *Use one of the questions above*

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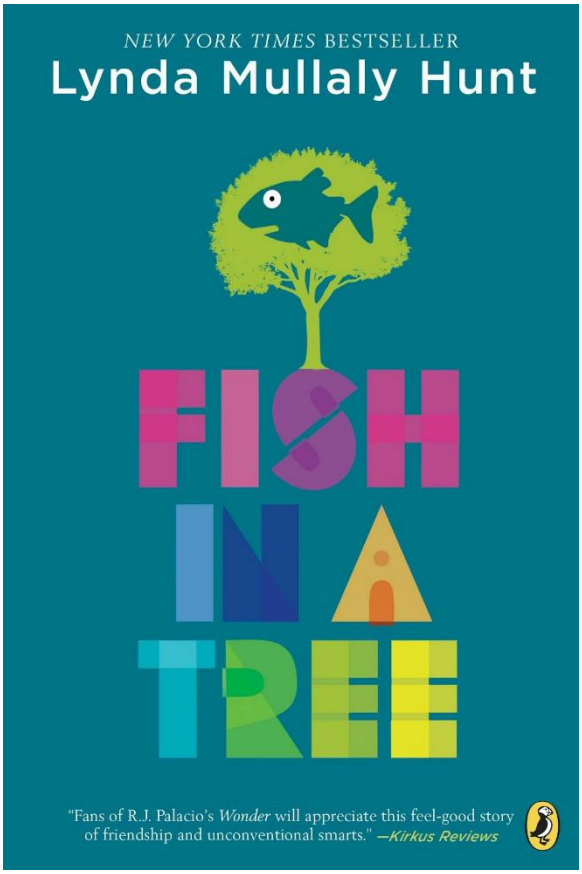
Fish In A Tree Study Guide



The book selected for the summer is called, Fish in a tree. This is the perfect book to read after studying about hardships, perseverance, and survival throughout the school year. You will make many connections while reading this novel that I hope leave you with curiosity and questions.

Chapters 1-5

Visualize: Draw a picture of the "mind movie" that plays in Ally's head in Chapter 1 when she is supposed to be writing an essay.(Ch.1)

...why... why? Why. why... why? Why. why... why? Why. why... why? Why. why... why? Why. why...

Summarize: In your own words, explain what went wrong with the card that Ally got for Mrs. Hall's class baby shower. (Ch.2)

Inference: why might Ally prefer being in the Principal's office rather than in her own classroom? (Ch.3)

Characterization: Describe the people in Ally's family (Ch.4-5)

Mom_____

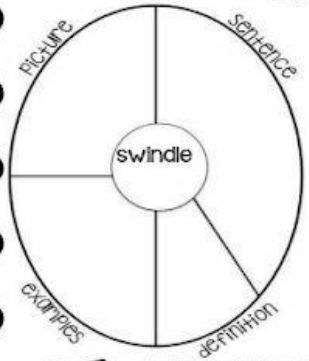
Dad- _____

Grandpa-_____

Travis-_____

Connection: Ally says that it is impossible to explain to someone else what it is like to live in her world. What do you think she means by this? Have you ever felt this way?

Chapters 6-10



Word Wise: Explain how Travis was almost *swindled* at the pawn shop.(Ch6)

Analysis: Ally says that she wishes "people could last as long as coins". What does she mean by this?_____

Characterization: Describe who Mr. Daniels is and Ally's reaction towards him (Ch.7)

Draw a picture of what this idiom sounds like and then define it.

Get out of Jail Free Card
Definition

Word Wise: Why does Ally feel like Mr. Daniels has taken away her "Get out of jail free card? (Ch.8)

Connection: What did Ally draw in the class writing journal and what did it represent? (Ch.10)

Prediction: Mr. Daniel's said that he is glad that Ally is not invisible. How does this make her feel.? Make a prediction of what will happen next?

Chapters 11-15

Interpret: Ally accidently offends Keisha by saying, "I don't mind being your friend". What was she trying to say? (Ch11)

Summarize: In your own words, why Shay was making fun of Albert. Did Albert mind? (Ch12)

Inference: How do you think Keisha felt when Ally tried to give her half of her flowers at the holiday chorus concert ? Explain how this simple action changed their friendship. (Ch13)

Compare & Contrast: Draw a double bubble (or Venn Diagram) to compare how Ally feels about reading and writing to how she felt after she figured out Mr. Daniel's shoe box riddle on Fantastico Friday. (Ch14)

Chapters 16-20

Inference Why do you think Ally lied to Mr. Daniels about tripping over her cat? (Ch16)

Interpret: Shay calls Ally, Keisha and Albert's lunch table the "Island of misfit toys". What do you think she means by this? (Ch17)

Cause & Effect: Mr. Daniel's asks Keisha to try harder and redo her assignment., how does this make Ally feel and what does she do as a response? (Ch18)

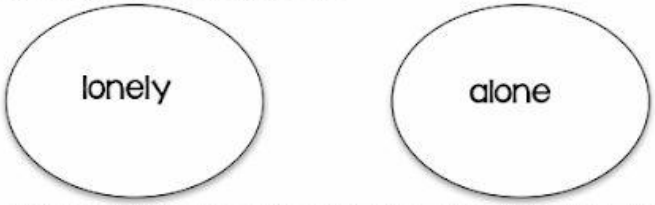
Opinion: Albert tells Ally and Keisha where his bruises are from. What do you think about when he says: "*I don't believe in violence. And anyway, it seems to me that big kids would get the blame in a fight.*" (Ch19)

Connection: Shay has been bullying Ally? Have ever experienced bullying?

Chapters 21-25

Inference What do you think the wish was that Ally made at the Butterfly Sanctuary? (Ch21)

Compare & Contrast: Define... ? (Ch23)



Summarize Who is Roy G. Biv? (Ch.24)

Inference: Why do you think Jessica bought all of those friendship bracelets from Shay?(Ch.24)

Connection: Ally feels like she got the poetry award out of pity and not because she earned it. Have you ever felt this way? Do you think that Mr. Daniels gave it to her out of pity? Explain. (Ch.25)

Chapters 26-30

Interpret: Explain Ally's metaphor about the bike that falls apart whenever she pedals? (Ch26)

Connection: Have you ever felt different? Keisha says, "I'm only different to the people who see with the wrong eyes." Do you agree or disagree? (Ch.26)

Predict: Why do you think Mr. Daniels asked to teach Ally to play chess after school? (Ch.28)

Illustrate: Draw a picture of what happened on the fieldtrip. (Ch.29)

Word Analysis: Mr. Daniels thinks Ally has *dyslexia*. Explain what this is. (Ch23)

Chapters 31-35

Cause & Effect: Think about two effects of Ally's dyslexia.

Cause: Ally is Dyslexic →

Infer: Travis says that "There are things he can't learn" What do you think this means? (Ch.32)

Define: Mr. Daniels uses *multi-sensory* techniques to help Ally learn to read. Break this word apart and define it. (Ch.33)

multi-

sensory-

I think multi-sensory means...

Interpret: Ally's grandpa used to say, "Be careful with eggs and words because neither can ever be fixed", explain what this means. (Ch.34)

Predict: What do you think Mr. Daniels will do after he reads Ally's note? (Ch35)

Chapters 36-40

Interpret: Ally compares Chess to life and the classroom. Explain her metaphor(Ch36)

Compare & Contrast: How are these two phrases similar and different? (Ch37)

I'm having trouble

I can't

Inference: Why do you think Shay nominates Ally? (Ch38)

Sequence: Draw a timeline of the Class President Election. (Ch38-39)

Cause & Effect: Infer why Shay is a bully and how that effects the class.

Cause: → Event: Shay is a bully → Effect:

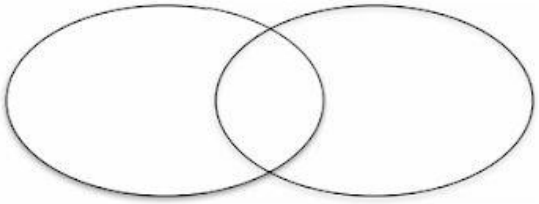
Chapters 41-45

Inference: Why do you think Shay faked a love letter to Ally from Max(Ch41)

Connection: What would you wish for if you could have an unlimited supply of anything? (Ch42)

Characterization: What are some adjectives to describe Keisha and Ally based on their Magnesium and Steel shirt idea?(Ch43)

Compare & Contrast: Compare Ally writing "Why?Why?Why? All over her assignment from the beginning of the book to her Book Report project.



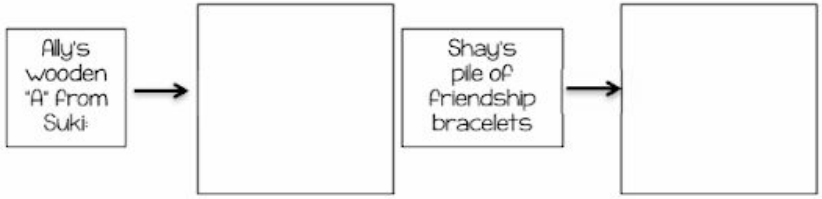
Infer: Do you think Travis is dyslexic too? Why or why not? (Ch45)

Chapters 46-51

Connection: Albert compares Ally to a The Flying Tiger WW2 planes, Keisha to a baby and himself to pachyderm. Compare yourself to something and explain. (Ch46)

Inference: Why do you think that Mr. Daniels assigned the extra credit assignment with the jumbled letters? (Ch47)

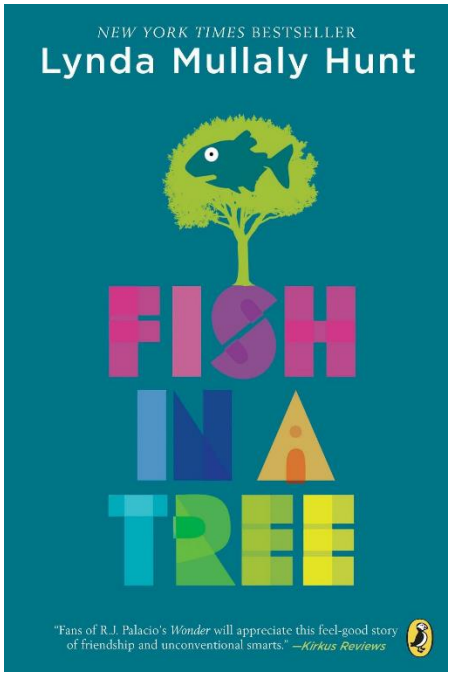
Compare & Contrast: Both Ally and Shay have something left on their desks. What do you think the wooden A Suki gave Ally means, and what do you think the pile of friendship bracelets mean? (Ch49)



Inference: Why do you think Ally feels sorry for Shay? (Ch50)

Predict: If the story were to continue, what do you think will happen next? (Ch51)

Fish In A Tree Activities



Please complete the activities as you read the book. Please write and think at your highest level. At the end of the novel, you will complete the Culminating Project Choice. I think you will really enjoy this project and this book! Please bring the reading activities and your Playlist Project on the first day of school. Have fun and enjoy!

Who and Where

In the story, Fish in a Tree, we meet a lot of characters. Jot down information about them as you read.

Character	The 411
Ally	
Mr. Daniels	
Shay	
Jessica	
Albert	
Keisha	
Oliver	
Mom	
Travis	
Mrs. Silver	

Ally~ Character Traits

Provide evidence from the story for each character trait listed. Explain with examples and if needed, include the page number.

Ally is **secretive**. For example,

Ally is **friendly**. For example,

Ally is **brave**. For example,

Ally is **persistent**. For example,

Mr. Daniels Character Traits

Provide evidence from the story for each character trait listed. Explain with examples and if needed, include the page number.

Mr. Daniels is **caring**.
For example,

Mr. Daniels is **perceptive**.
For example,

Mr. Daniels is **patient**.
For example,

Mr. Daniels is **positive**
For example,

Albert~ Character Traits

Provide evidence from the story for each character trait listed. Explain with examples and if needed, include the page number.

Albert is **loyal**.
For example,

Albert is **secure**.
For example,

Albert is **intelligent**.
For example,

Albert is **caring**.
For example,

Keisha~ Character Traits

Provide evidence from the story for each character trait listed. Explain with examples and if needed, include the page number.

Keisha is **Creative**.
For example,

Keisha is **friendly**.
For example,

Keisha is **supportive**.
For example,

Keisha is **confident**.
For example,

Shay~ Character Traits

Provide evidence from the story for each character trait listed. Explain with examples and if needed, include the page number.

Shay is **controlling**.
For example,

Shay is **unfriendly**.
For example,

Shay is **insecure**.
For example,

Shay is **selfish**.
For example,

Name _____

CAUSES and EFFECTS

Think about each cause written below. Write at least one effect for each cause in the appropriate rectangles.

Cause #1
Ally gives Mrs. Hall a sympathy card for her baby shower. (Ch. 2-4)

Cause #2
Shay asks Ally to sit with her and her friends at lunch. (Ch. 11)

Cause #3
Ally shares some flowers with Keisha at the holiday concert. (Ch. 13-15)

Cause #4
Mr. Daniels has the students guess what is inside some boxes. (Ch. 14)

Cause #5
Ally goes for a ride in Travis' new car. (Ch. 20)

Cause #6
Mr. Daniels awards Ally with the Fantastico Poetry Award. (Ch. 25)

Cause #7
Shay draws a picture of Ally wearing a dunce cap. (Ch. 29)

Cause #8
Mr. Daniels offers to teach Ally to play chess after school. (Ch. 28-30)

Cause #9
Ally and Keisha go to Albert's house for the first time. (Ch. 34)

Name _____

Figurative LANGUAGE

Below, read the quotes in the first column from the book which contain figurative language. Highlight or underline the part of the quote that is figurative. Then, circle the type of figurative language in the second column. Last, justify your answers in the third column.

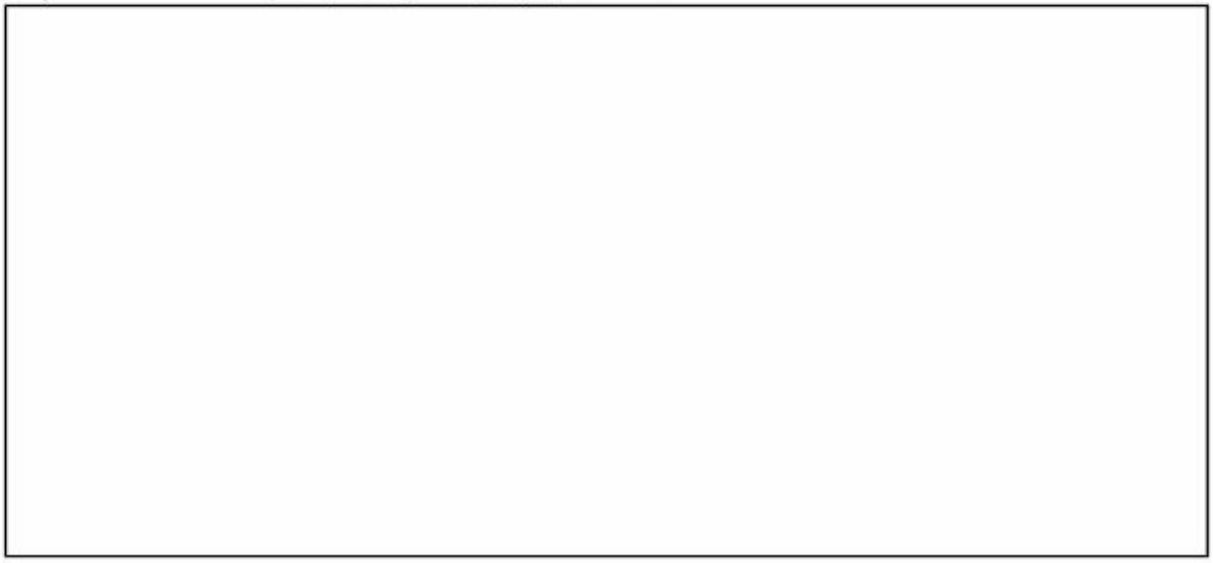
Quote	TYPE OF Figurative Language	I know this because...
1. "No matter how many times I have prayed and worked and hoped, reading for me is still like trying to make sense of a can of alphabet soup that's been dumped on a plate." (pg. 10)	Simile Metaphor Personification Idiom Hyperbole	
2. "'I have a surprise. I have a brand-new writing journal for each of you, which you will write in every day.' Oh no. I'd rather eat grass." (pg. 53)	Simile Metaphor Personification Idiom Hyperbole	
3. "Every word is another shovelful of dirt from the hole I've dug for myself. So I figure my best bet is to shut my mouth." (pg. 59)	Simile Metaphor Personification Idiom Hyperbole	
4. "Mrs. Muldoon has turned around to stare. Her mouth is open wide enough for a bird to build a nest in." (pg. 74)	Simile Metaphor Personification Idiom Hyperbole	
5. "'I don't think it is within my nature to hit someone. I will not meet violence with violence. I won't stoop to their level' [Albert says]." (pg. 104)	Simile Metaphor Personification Idiom Hyperbole	

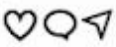
Quote	TYPE OF Figurative Language	I know this because...
6. "[Travis] still doesn't answer. He just shakes the keys like a baby rattle." (pg. 108)	Simile Metaphor Personification Idiom Hyperbole	
7. "Mr. Daniel's eyes are wide, and they are waiting for me. 'Ally?' he says. 'It's okay, now. Take your time.'" (pg. 123)	Simile Metaphor Personification Idiom Hyperbole	
8. "I stop like my feet are strapped to thousand-pound blocks." (pg. 148)	Simile Metaphor Personification Idiom Hyperbole	
9. "I can't say no to that deal. Homework is only one step above death." (pg. 148)	Simile Metaphor Personification Idiom Hyperbole	
10. "The lady tells us that girls didn't go to school as much as boys...My mind bites into that and I can't stop thinking about it." (pg. 153)	Simile Metaphor Personification Idiom Hyperbole	
11. "...I think of words. The power they have. How they can be waved around like a wand—sometimes for good, like how Mr. Daniels uses them."	Simile Metaphor Personification Idiom Hyperbole	

Instagram Feed

Name _____

Choose one of the characters from the story. Write two Instagram posts from that character's point of view, detailing important events from the story. Include at least 3 hash tags per post, along with a "photograph" (illustration) of each event.



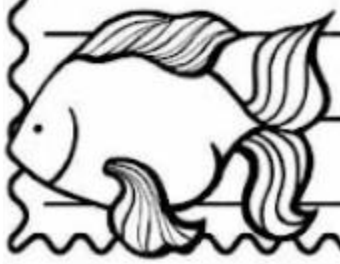


Name: _____ Date: _____

WRITTEN RESPONSE

"Everyone is smart in different ways.
But if you judge a fish on its ability to climb a tree,
it will spend its whole life thinking that it's stupid."

Directions: Analyze this quote from Mr. D. Why did he tell this to Ally?



Name _____

Culminating Project Choices

In the boxes below, you will find nine project choices to complete after you finish the book. Each of the projects is worth a certain number of stars. You must choose one or more projects that add up to at least _____ stars. Color in the stars of the project(s) you choose.

Biography ☆☆

Do some research about a famous person that is believed to have dyslexia. Create a project or display about this person. Be sure to include information about his/her life, his/her struggles, and his/her accomplishments.

Playwright ☆☆

Choose your favorite scene(s) from the story. Write it in the form of a play. Either record it to broadcast, or perform it live in front of the class. You will need to get some classmates to play your supporting actors.

Lynda Mullaly Hunt Books ☆☆

Choose another book by Lynda Mullaly Hunt to read, such as *One for the Murphys*. Make a project that represents the book in a creative way. For example, you may write a book report, or you may create an art piece portraying the book.

Game On ☆☆☆

Create a board game that is themed around the book. Your game must include a board, game pieces, instructions, question cards, and any other materials needed to play the game. You will present your game to the class.

Alternate Ending ☆

Do you wish that *Fish in a Tree* had a different ending? Write an alternate ending to the story. Include an illustration with your alternate ending.

Newspaper ☆☆☆

Write a complete newspaper about the events that happen in the book. Include some articles, a comic strip, an advertisement, an obituary, and any other newspaper parts you can think of!

3D Characters ☆☆

Create 3D depictions of the characters. You might use clay, play-doh, posterboard, yarn, wood, or any other material you choose. Include index cards with descriptions about each character.

Paper Bag Book ☆☆

Fill a bag with 7-9 items that represent important parts of the book. Present the items to the class and explain why each item is important. Design the outside of the bag to include the book's title, author, and a picture.

Sketchbook of Impossible Things ☆

Get inspired and create your own sketchbook of impossible things. Include at least ten sketches of impossible things.

Enrichment Packet

The following pages reviews various skills acquired during the school year in science and social studies class. Please bring these completed pages to your homeroom teacher on the first day of school.

Mid-Western United States

DIRECTIONS: 1. Unscramble the ten state names. 2. Write the number for each state in the correct circle on the map. 3. Find the state names in the word search and circle them.

1. SXEAT
2. OMWNYGI
3. ORDATNAKTHO
4. LAOOMAHK
5. SSAANK
6. NAMNTAO
7. NAKSBEAR
8. RDOAOCLO
9. EMWEIOCXN
10. DHAUOATSOKT

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

North Central United States

DIRECTIONS: 1. Unscramble the nine state names. 2. Write the number for each state in the correct circle on the map. 3. Find the state names in the word search and circle them.

1. OMSEANNTI
2. RIUIOSMS
3. CUYTKNEK
4. SINNSWICO
5. NDNIAAI

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

6. OWAI
7. IMHNAIGC
8. INILSLOI
9. OOHI

North Eastern United States

DIRECTIONS: 1. Unscramble the eleven state names. 2. Write the number for each state in the correct circle on the map. 3. Find the state names in the word search and circle them.

1. SCSMASUTESATH

2. AINEM

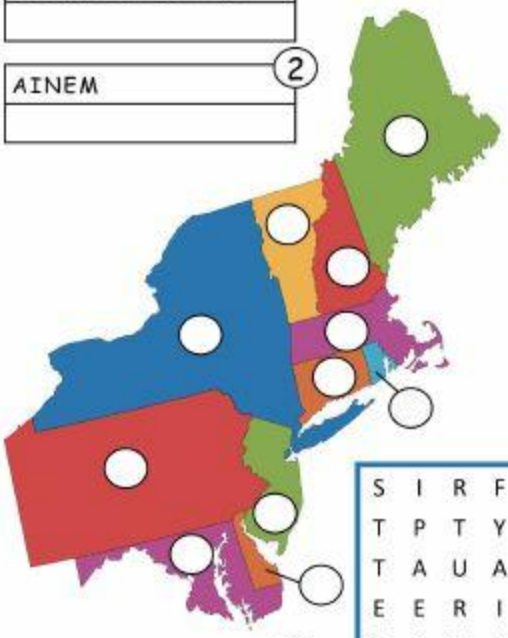
3. AIEYNANNLSVP

4. REJNEESWY

5. SHMWHPAEERIN

6. NRYEWOK

7. HOIDALESRDN



8. ITTENOCCUCN

9. WLAEAERD

10. ALRYMADN

11. TRNMEOV

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

Western United States

DIRECTIONS: 1. Unscramble the nine state names. 2. Write the number for each state in the correct circle on the map. 3. Find the state names in the word search and circle them.

1. WHAIIA

2. RAOIZNA

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

3. ASAAKL

4. WOANIGHTSN

5. NFLROACIAI

6. ONGOER

7. TAHU

8. DANVAE

9. HODAI

South Eastern United States

DIRECTIONS: 1. Unscramble the eleven state names. 2. Write the number for each state in the correct circle on the map. 3. Find the state names in the word search and circle them.

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

1. CTRNOOHNARILA

2. RANSAKSA

3. OCALTNHISUROA

4. SNEENEETS

5. RSVEWNIIATIG

6. IGEROAG

7. AAALAMB

8. PSSIIPMSIIS

9. UISOAINAL

10. GAIIRVIN

11. FDIRAOL

Mystery Box

Fish in a Tree

MATERIALS: 1 shoebox per group, 4-5 rubber bands per group, variety of classroom objects

The following team building challenge is perfect for students to complete **after reading Chapter 14: Boxed in and Boxed Out.** Students need to be divided into groups of 3-4 and each given a shoebox. You will need to write a different number on the box lids for each group. (i.e. If you have 6 groups, write the numbers 1-6 on the box lids.) (The same shoeboxes can also be used later on for the Mind Movie Projector STEM challenge.) The student groups must secretly choose an item in the classroom to place inside the box without the other groups seeing. They can stretch rubber bands around the box to keep it closed tight while other groups are trying to figure out the object.

Each student will need a copy of the recording booklet found on the following pages to record the properties of each object and their hypothesis for what they think the object might be. You will only need as many pages as the number of groups you have (minus their own group).

Students will rotate to the numbered boxes at each table with their group. They will discuss, debate, and observe as many properties about the object as they can before making their hypotheses as a group. This is a wonderful opportunity for your students to practice communication and listening skills with one another, as well as explore their different senses.

MYSTERY OBJECT 1

HOW DOES IT SOUND?
HOW DOES IT MOVE?
WHAT IS THE APPROXIMATE SIZE AND WEIGHT?
MY HYPOTHESIS:
RESULT:

Mystery Object 2

HOW DOES IT SOUND?

HOW DOES IT MOVE?

WHAT IS THE APPROXIMATE SIZE AND WEIGHT?

MY HYPOTHESIS:

RESULT:

Coin Chemistry

Fish in a Tree

NGSS Standard Alignment: 5-PS1-4: Conduct an investigation to determine whether the mixing of two or more substances results in new substances. 3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. CCSS.MATH.CONTENT.5.MD.B.2: Represent and interpret data

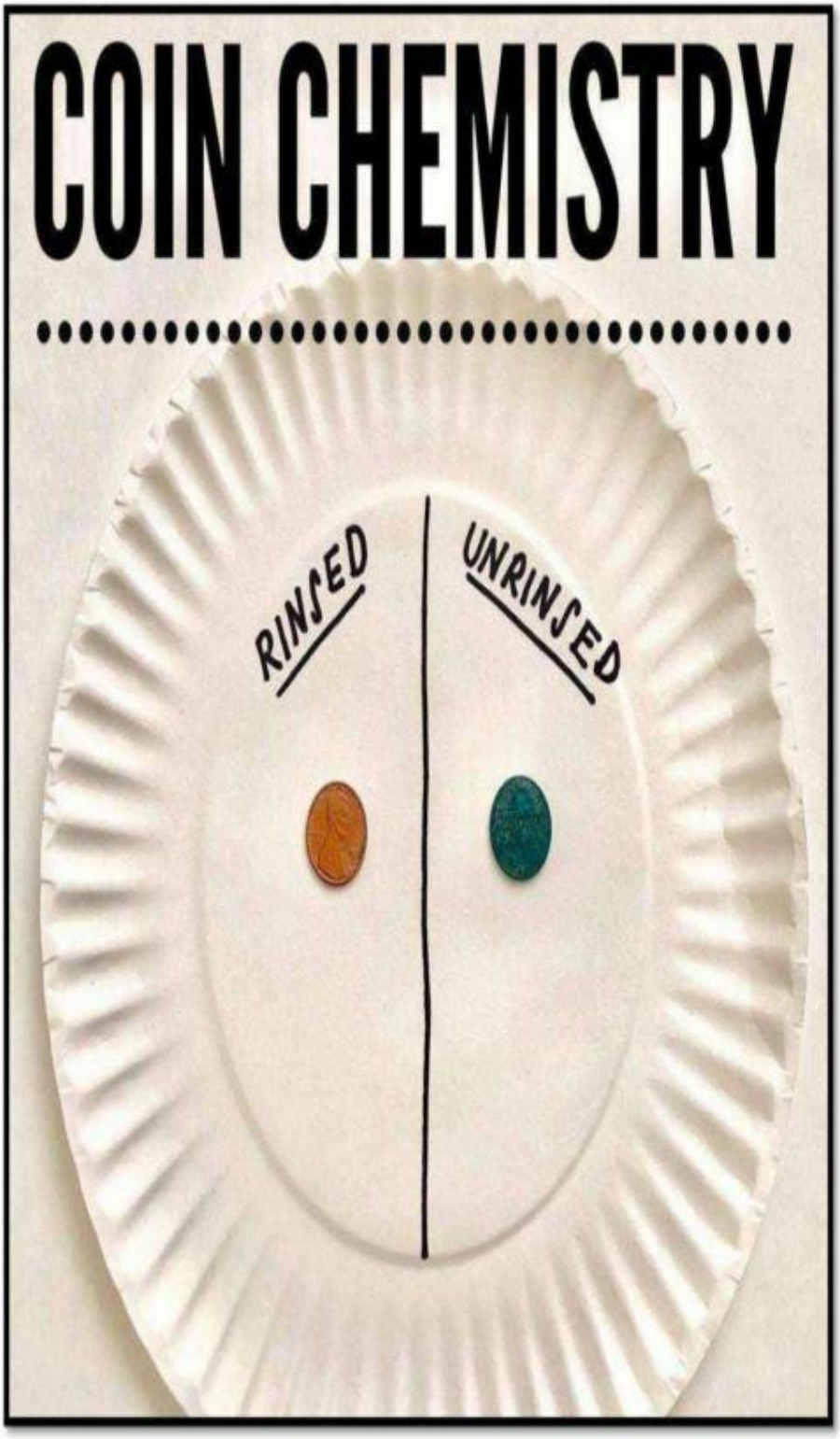
Challenge Description: Students will conduct a coin cleaning experiment using vinegar and salt to observe a chemical reaction. They will learn that the vinegar/salt causes what is called an "oxidation process" as it reacts with the oxygen in the air, forming copper oxide as well as malachite.

Suggested Materials: 2 aged pennies per group, 1 cup of white vinegar per group, 1 teaspoon of salt per group, 1 popsicle stick per group, 1 plastic cup per group, 1 paper towel per group, 1 paper plate per group, water for rinsing.

Coin Chemistry

Fish in a Tree

Possible Product



Coin Chemistry

Fish in a Tree

What is a chemical change?	What type of chemical change did you observe during your penny tests?
What are some examples of chemical changes?	Why did this chemical change occur?

Spinning Illusions

Fish in a Tree

NGSS/CCSS Standards: 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects

Challenge Description: Students will observe and discuss a variety of optical illusions and how they work. They will discover that color, lights and patterns can create images that can be deceptive or misleading to our brains. The information gathered by the eye is processed by the brain, creating a perception that in reality, does not match the true image. Students will also create their own spinning illusions.

Suggested Materials: 1 set of optical illusion task cards per group with recording sheet, 1 set of spinning illusions templates per student, 4 straws per student, stapler for shared use

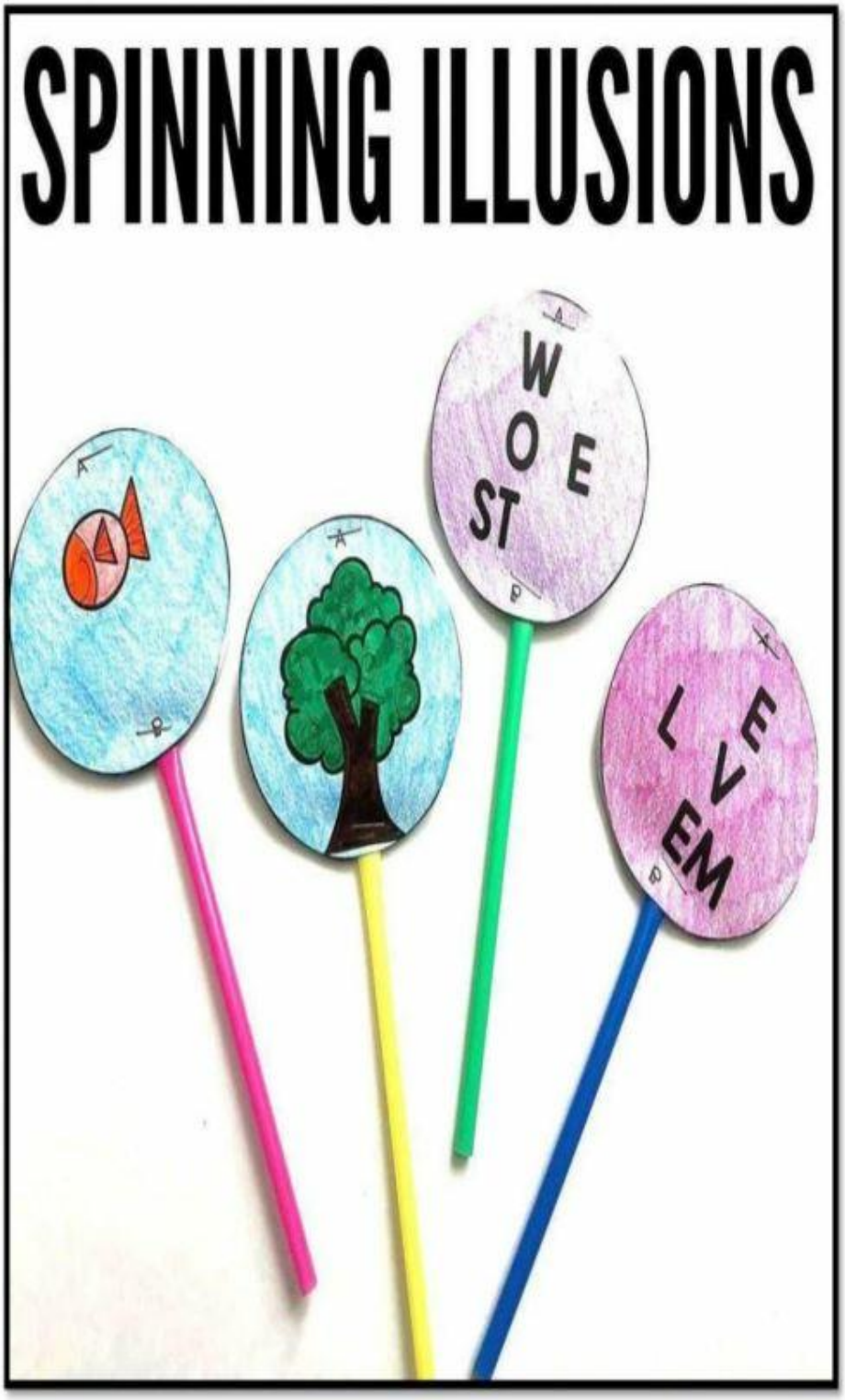
LESSON PLAN

1. Project or display real Google images of optical illusions. Compare the similarities and differences in different designs and ask students to explain how they work.
2. One at a time, share and discuss the optical illusion task cards with the students. Refer to the provided vocabulary cards as needed and display in your classroom. Record student ideas on the provided teacher chart throughout the discussion.
3. Share the challenge, rules, and permitted materials with students. Have students create two premade spinning illusions and once they see how they work, have them create two of their own: one with a secret message with letters and the other with only pictures.
4. Hold a whole class closing discussion and reflection, allowing students to share their spinning illusions with other and discuss what they learned about optical illusions.

Spinning Illusions

Fish in a Tree

Possible Product



Spinning Illusions

Fish in a Tree

What is an optical illusion?

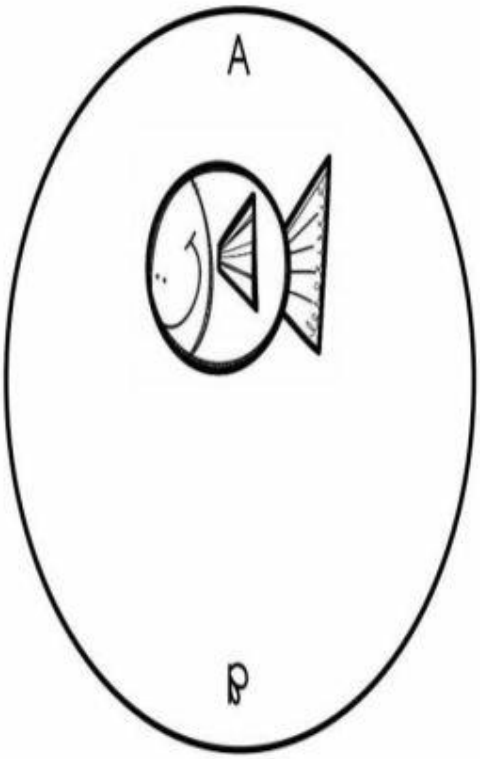
How do optical illusions work?

What are some different types of optical illusions?

How do spinning illusions work?

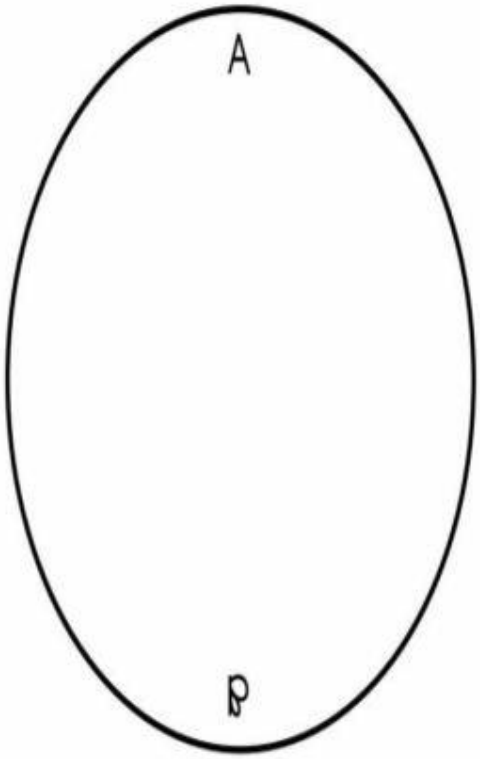
SPINNING ILLUSIONS

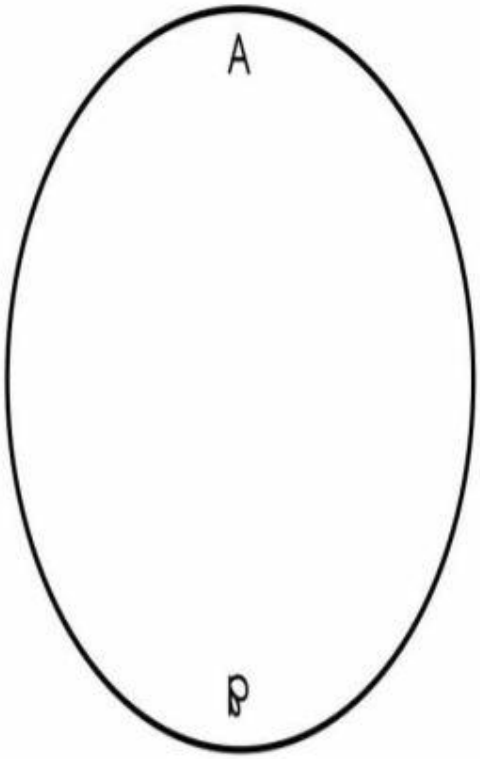
Cut out each set of circles and place them back to back with the As and Ps aligned. Slip a straw between the set of circles and staple the circles to the top of the straw. Put the end of the straw between your hands. Quickly slide your hands back and forth to twist the straw so that the images rotate quickly. What is happening to the images?

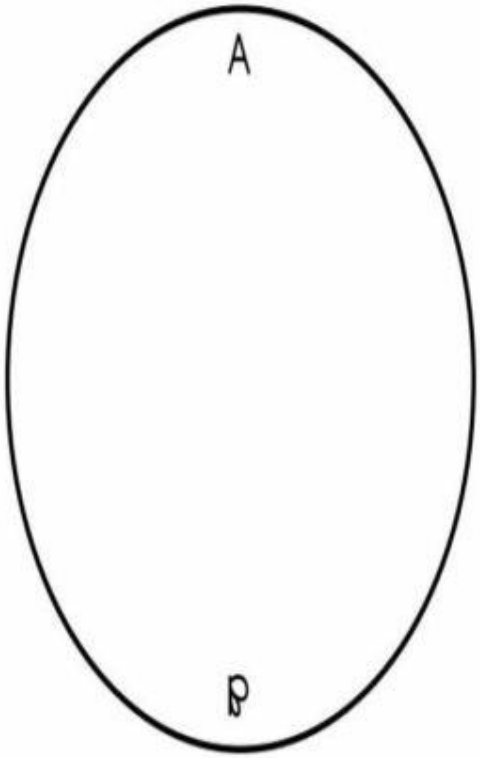


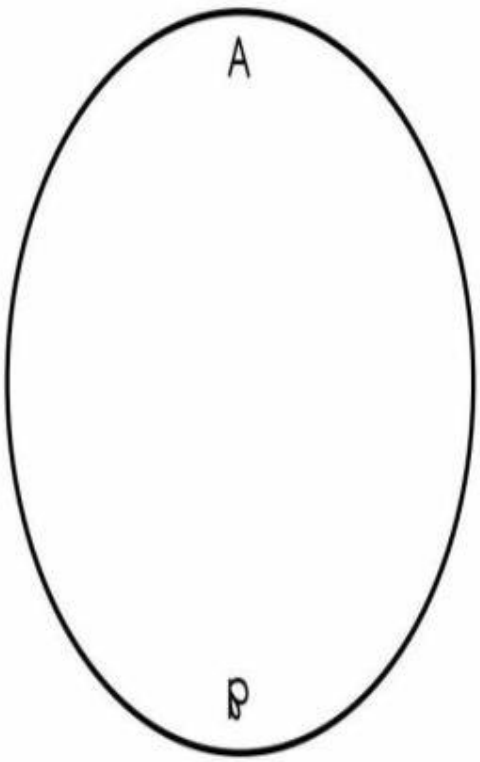
SPINNING ILLUSIONS

Now that you've discovered how spinning illusions work, create your own!
Design, color, and assemble one illusion using only letters and one using only pictures.









Consume or be consumed: breaking down the structure of a food web

By National Geographic Society, adapted by Newsela staff on 03.12.19
Word Count **1,005**
Level **640L**

Many organisms make up a food web. Animals like zebras are herbivores, or consumers that eat only plants. Lions are carnivores, or animals that eat other consumers.

Every living being is part of a food chain. Food and the animals that eat the food make up a food chain. For example, plants and grasses are food for zebras. Zebras are food for lions. Plants, zebras and lions make up a food chain.

There are many different food chains in an ecosystem. All together, the food chains in the ecosystem make a food web.

Trophic Levels

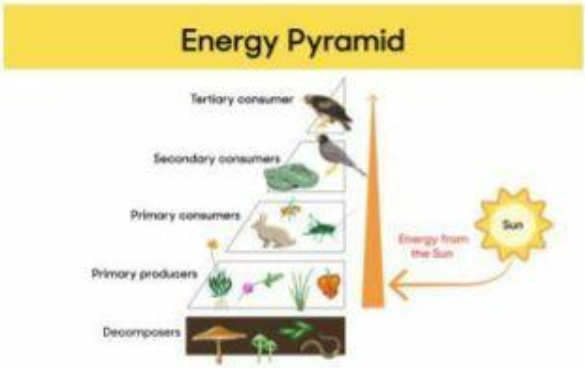
Organisms in food webs are grouped into categories. These categories are called trophic levels.

Producers

Organisms in the first trophic level are called producers. Plants are producers. Algae and some bacteria are also producers. Each producer makes its own food. Most producers use

photosynthesis. This is a series of chemical reactions. Plants use these reactions to make energy from sunlight, carbon dioxide and water.

Consumers



The next trophic levels are animals that eat producers. These animals are called consumers.

The first level of consumers is made of herbivores. These animals are also called primary consumers. They eat plants, algae and other producers. Deer, mice and elephants are herbivores. They eat grasses, shrubs and trees. In the desert, a mouse is a primary consumer. It eats seeds and fruit. In the ocean, many fish and turtles are herbivores. They eat algae and seagrass.

Secondary consumers eat herbivores. In a desert, a secondary consumer may be a snake. It eats mice. In underwater kelp forests, sea otters are secondary consumers. They hunt sea urchins.

Animals in the next level are called tertiary consumers. They eat secondary consumers. In the desert, an owl or eagle may hunt snakes.

Top predators are also called apex predators. They eat other consumers. No other consumers eat them. Lions are apex predators on the grasslands of Africa. In the ocean, the great white shark is an apex predator. In the desert, bobcats and mountain lions are top predators.

Consumers can be carnivores or omnivores. Carnivores only eat meat. Omnivores eat both meat and plants.

Detritivores And Decomposers

Detritivores and decomposers make up the last part of food chains. Detritivores eat plants and animals that are not alive. For instance, vultures eat dead animals.

Some organisms, like fungi and bacteria, are decomposers. They turn decaying plants into soil. Decomposers allow food chains to start over. For example, grass makes its own energy through photosynthesis. A rabbit eats the grass. Then a fox eats the rabbit. When the fox dies, worms and fungi break down its body. The body returns to the soil. There, it leaves nutrients for plants to grow.

Biomass

Biomass is the energy in living organisms. Producers use the sun's energy to create biomass. The higher the trophic level, the lower the biomass. There is more energy in lower trophic levels than in higher ones.

There are always more producers than herbivores in a healthy food web. A healthy food web has many producers and many herbivores. It only has a few carnivores and omnivores.

Every part of a food chain is connected to other food chains. When one part is in danger, others are also at risk. If plants are destroyed, herbivores don't have enough to eat. Their numbers go down. The number of plants can decrease because of drought or disease.

Humans can also destroy food chains by destroying habitats. People cut down forests. We use the lumber for buildings. We also pave over grasslands to build shopping malls or parking lots.

Bioaccumulation

Sometimes, pesticides can affect food chains. Pesticides get into the soil and water. Animals eats plants that are covered in pesticides. The pesticides stay in the animals' fat. When a carnivore eats that animal, it also eats the pesticides. This is called bioaccumulation.

Bioaccumulation happens in water ecosystems, too. Runoff from cities or farms can be polluted. Algae, bacteria and seagrass absorb the pollutants. Sea turtles and fish eat the seagrass. Then, sharks or tuna eat those fish. When people finally eat the tuna, that meal is full of pesticides.

In the 1940s and 1950s, bald eagles began disappearing. One major cause was a pesticide called DDT. The name DDT stands for dichloro-diphenyl-trichloroethane. It was used to kill insects that spread diseases. DDT builds up in soil and water. Worms, grasses, algae and fish ate organisms with DDT. Bald eagles ate the fish. They had high amounts of DDT in their bodies. They got it from their prey. These eagles started laying eggs with thin shells. These shells often broke before the baby birds hatched.

The U.S. government decided to ban DDT. Food webs have come back in most parts of the country. Bald eagle chicks are able to hatch.

Fast Facts:

Lost Energy

Higher trophic levels have less biomass. That is because most of an organism's biomass, or energy, is lost as heat or waste. A predator eats only the biomass that is left.

A Million To One

Marine food webs are usually larger than food webs on land. Scientists have measured how large. If a food web has a million producers, like algae and seagrass, it may only have 10,000 herbivores. This food web may only have 100 secondary consumers, like tuna. At the top of this massive food web, there is only one apex predator. This apex predator could be a human being.

Out For Blood

One of the first people to talk about food webs was Al-Jahiz. He was a scientist in Baghdad, Iraq. He lived in the early 800s, almost 1,200 years ago. Al-Jahiz wrote about mosquitoes preying on the blood of elephants and hippos. He understood that although mosquitoes preyed on other animals, they were prey, too. They were eaten by animals such as flies and small birds.

Quiz

1 Why are fish, snakes, and lions all considered consumers?

(A) They eat other organisms to get energy.

(B) They all eat plants.

(C) They turn dead organisms into soil.

(D) Each one is consumed by some other organism.

2 Read the section "Biomass."

Which sentence from the section supports the idea that producers are needed for a healthy food chain?

(A) Biomass is the energy in living organisms.

(B) If plants are destroyed, herbivores don't have enough to eat.

(C) The number of plants can decrease because of drought or disease.

(D) We also pave over grasslands to build shopping malls or parking lots.

3 How are detritivores and decomposers important in a food chain?

(A) They turn dead animals and decaying plants into soil nutrients for plants to use again.

(B) They make sure pollutants do not bioaccumulate in the ecosystem.

(C) They are eaten by the producers.

(D) They balance the biomass when there are too many consumers.

4 Read the following paragraph from the section "A Million To One."

Marine food webs are usually larger than food webs on land. Scientists have measured how large. If a food web has a million producers, like algae and seagrass, it may only have 10,000 herbivores. This food web may only have 100 secondary consumers, like tuna. At the top of this massive food web, there is only one apex predator. This apex predator could be a human being.

What conclusion can the reader make from this paragraph?

(A) There are many more apex predators in the oceans than there are on land.

(B) Human beings are the only apex predator in water or on land.

(C) Algae and seagrass are less important than tuna and sharks.

(D) There are many more producers in the oceans than apex predators.

5 How do producers get their energy?

(A) by absorbing it from the soil

(B) from the primary consumers that eat them

(C) through a process called bioaccumulation

(D) through a series of chemical reactions called photosynthesis

6 Complete the sentence.

Decomposers cause ___.

(A) chemicals that build up in animals in the food chain

(B) chemical reactions that make energy from sunlight

(C) food chains to start over with nutrients in the soil

(D) food chains to have lower biomass near the top

7 How is the sun is the original source of energy for all animals.

(A) Animals absorb sunlight through their skin, providing them with energy.

(B) Through bioaccumulation, sunlight is passed through the food chain.

(C) Plants use sunlight to make their own food and animals eat plants or other animals.

(D) When decomposers break down plants they make the sun's energy available for animals to use.

8 How did bioaccumulation hurt bald eagles?

(A) It caused pesticides to kill the bugs and creatures that the eagles counted on for food.

(B) It caused pesticides to build up in the food chain that made the eagles' egg shells too thin.

(C) It caused the forest habitats where the eagles lived to be cut down for buildings.

(D) It caused the forest habitats to lose their energy by killing their habitat's producers.

My disabilities do not define me. I am Jim

By James Gentry, The Conversation, adapted by Newsela staff on 04.11.18
Word Count **672**
Level **640L**

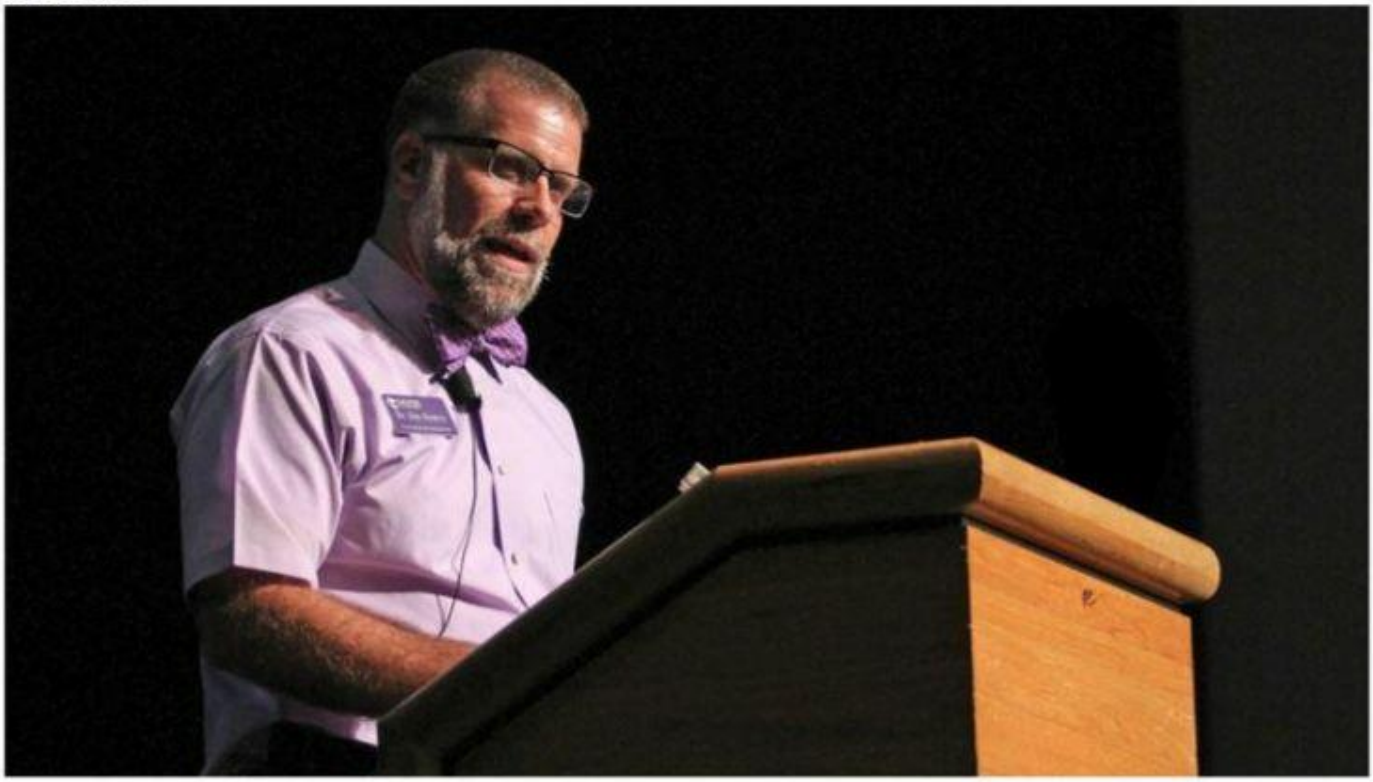


Image 1. Dr. James "Jim" Gentry, associate professor of curriculum and instruction within Tarleton State University's College of Education in Texas. Photo courtesy of James Gentry

I teach other teachers. I show people how to be the best teachers they can be. But I'm also different. I have learning challenges.

I found my life's calling thanks to educators who were dedicated to me. My disabilities could have defined me, but I didn't let them. I am not learning-disabled, I am Jim.

My Disability

Born in 1970, I suffered a head injury as a young boy. Perhaps that led to my learning problems, but doctors aren't really sure. What I do know for sure is that in kindergarten I could not spell my name, James. That is when I became Jim.

I decided school was about one thing, learning to read and write. Since I was poor at both, I did not like school, and I didn't like myself very much either. At the age of 6, I was diagnosed with dyslexia. This is a learning disability that makes it very hard for someone to read words, letters or symbols.

Then something changed. New teachers, called special education teachers, came to my school. They brought a study plan made just for kids like me. They showed me how to read and write in special new ways. For example, I learned I could read books by looking at pictures or by acting out the stories.

All this happened because, in 1975, U.S. lawmakers passed an education law for kids like me. It was called the Individuals with Disabilities Education Act. It created special education programs for all students with disabilities.

How I Learned

I wanted to be a learner, reader, thinker and writer. That was a challenge since I could not tell left from right. But that changed in my second year of the first grade.

One day, I got sticky tar on the side of my shoes. The next morning, I lined up the pair so they stuck together just right. Next, I slid my feet into the correct left and right shoes. I was able to put my shoes on the right feet all by myself. The tar helped me figure out which was which.

I learned to use objects around me to figure out directions. Then, directions helped me learn to write and read. One day, one of my teachers told me: "Write from left to right." I asked what was left and what was right. She took my paper, moved the holes of the paper to one side of my desk and said: "The holes face this way, left." I looked in that direction and saw some huge windows. I moved the holes of my paper toward the windows. After that, I never wrote on the wrong side again.

I had understood how to figure out directions. I used that skill to understand letters. Some letters, like the letter B, face to the right. I could finally get better at reading and writing.

College And Beyond

College was a bigger challenge. Learning how to spell seemed impossible for me. Once I got a personal computer, though, everything changed, since I could use programs that checked my spelling. Now I could turn in clean papers without worrying about handwriting or mistakes.

I completed my Bachelor of Science degree with top grades. Later, I completed my master's degree to become an expert on education. I even got a Ph.D. in education, with top grades.

Making A Difference

I am now a professor at Tarleton State University in Texas. I work with students to help them focus on their abilities, not on their disabilities. I have a purpose. I belong. More than anything else, I am Jim.

I am grateful for laws like the Individuals with Disabilities Education Act. They have given me and others like me the chance to succeed.

_James Gentry is a professor at Tarleton State University, Texas. _

Quiz

1 Which section gives information about HOW Jim uses what he has learned to help others?

(A) Introduction [paragraphs 1-2]

(B) "My Disability"

(C) "College And Beyond"

(D) "Making A Difference"

2 Read the section "How I Learned."

Which answer choice BEST describes the structure of the section?

(A) cause and effect

(B) compare and contrast

(C) problem and solution

(D) question and answer

3 Which option accurately compares HOW the author felt about school before and after the law that created special education programs?

(A) Before, he thought everyone else disliked going to school as much as he did. After, he realized that other kids liked school more than he did.

(B) Before, he did not like going to school because it was hard to read and write. After, he learned new ways to figure things out thanks to his teachers.

(C) Before, he enjoyed going to school because he did not have to work hard. After, he liked school less because his teachers forced him to read.

(D) Before, he did not worry about going to school because he did not pay attention. After, he tried to work more with other students who could help him.

4 Read the paragraph from the introduction [paragraphs 1-2].

> *I found my life's calling thanks to educators who were dedicated to me. My disabilities could have defined me, but I didn't let them. I am not learning-disabled, I am Jim.*

What is the author's point of view about his disabilities?

(A) They were something he worked to get past.

(B) They are an important part of who he is.

(C) They stopped him from learning many things.

(D) They had no effect on the choices he made.