

GREATEST COMMON FACTOR

Special Ed

ALSO INCLUDES GOOGLE SLIDES



This unit was created with this guy in mind. He has autism and an intellectual disability. He is a non-reader and lacks many prerequisite math skills needed for math. With some support, he is able to do this unit and enjoys the challenge. He is my tester!!

Table of Contents

Worksheet pages	Title
4-32	Greatest Common Factor
33-35	Vocabulary board
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56-60	Sorting prime and composite numbers
61-72	Factor trees
73-78	Outside in charts
79-85	Finding greatest common factor
86-88	Quiz
89-90	Terms of Use

In a separate files:

- Lesson plans
- Directions and links to digital version of the activities
- Group activities

This unit contains close to 100 pages of material. But, don't worry!! I have included a **10 day lesson plan** to help you make the most of everything packed in this unit.

Greatest Common Factor Lesson Plan

Preparation

- Print out a vocabulary board for each student to use throughout unit
 - Laminate or place in page protector
- Book
 - Print out, laminate, and bind
 - OR your students can listen to the pre-recorded version
 - I highly recommend using the movie version of the book (see direction for digital activities for link) since it is animated and narrated
- Group activities
 - Write 3-4 sets of the numbers 1-30 on index cards
 - Deck of playing cards
- Bingo cards
 - Print cards on cardstock and laminate
- Prime Number boards
 - Print boards on cardstock and laminate
 - There are 3 sizes available in color and BW
 - Students will use and refer to these throughout the unit

Preassessment (do day 1 before starting lesson)

- Use the quiz as the preassessment
- I cannot emphasize enough how important this step is. If you want to see growth, this preassessment is so important!!

Teaching Tips

1. *Color Coding*: this is a really easy way to add more structure to a matching activity. Outline or color in an empty box or sorting label. Outline or color in the corresponding picture symbols the same colors. Becomes a color matching task.
 - a. For more info, read more here:
<https://specialneedsforspecialkids.org/2015/09/05/using-color-coding-for-differentiation/>
 - b. I also have a blog post on differentiating one activity 3 ways:
<https://specialneedsforspecialkids.org/2018/10/22/differentiating-1-activity-3-ways-easily-and-effectively/>

The lesson plans contain:

Overall tips for teaching students with significant needs and who may lack some pre-requisite skills.

Quick Look

Day	Activity	Day	Activity
1	<ul style="list-style-type: none">• Book• Vocabulary board intro• Prime number board introduction• GCF group activity• Color in prime number board	6	<ul style="list-style-type: none">• Book• GCF group activity• Outside in charts
2	<ul style="list-style-type: none">• Book• GCF group activity• Sorting activity	7	<ul style="list-style-type: none">• Book• GCF group activity• Finding GCF
3	<ul style="list-style-type: none">• Book• GCF group activity• Factor trees	8	<ul style="list-style-type: none">• Book• GCF group activity• Finding GCF D
4	<ul style="list-style-type: none">• Book• GCF group activity• Factor trees	9	<ul style="list-style-type: none">• Book• GCF group activity• Finding GCF
5	<ul style="list-style-type: none">• Book• GCF group activity• Outside in charts	10	<ul style="list-style-type: none">• Quiz

The lesson plans contain:

A quick look at what you will do each day.

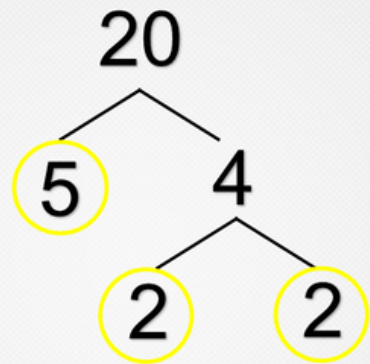
Days 7-9

Activity	Notes	Materials
Read or listen to the movie version of the book (10 minutes)	<ul style="list-style-type: none">• Read through the story, asking lots of questions• Continue to make connections between book and vocabulary board	<ul style="list-style-type: none">• Book• Vocabulary board
GCF group activities (10 minutes)	<ul style="list-style-type: none">• Choose an activity to do as a group. See the handout for the explanation of 10 different activities to choose from.<ul style="list-style-type: none">◦ There are several that have options to focus only on prime numbers which would be a good choice these first few days.	<ul style="list-style-type: none">• Group activity handout• Other supplies depend on activity chosen
Review (5 minutes)	<ul style="list-style-type: none">• Review the worksheet completed yesterday	<ul style="list-style-type: none">• Activity done yesterday
Finding the greatest common factor (10 minutes)	<ul style="list-style-type: none">• Do 1-2 worksheets each day finding the greatest common factor using the outside in charts<ul style="list-style-type: none">◦ Students will fill out the outside in charts◦ Students will find the greatest common factor• Allow access to and reference prime numbers board	<ul style="list-style-type: none">• Worksheet• Prime numbers board
Sharing (10 minutes)	<ul style="list-style-type: none">• Each student shares one of their finished worksheets with the group using the communication method of their choice	<ul style="list-style-type: none">• Completed worksheets• Communication devices

The lesson plans contain:

Detailed instructions on how that day's lesson should run including group and individual activities.

One method is to do a factor tree. Start with any set of factors for the number. Continue finding factors until you only have prime numbers left.



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Another way to find the factors in a number is to fill out a chart working from the outside in using whole number that divide evenly into the starting number.

20

1						20
1	2				10	20
1	2	4		5	10	20

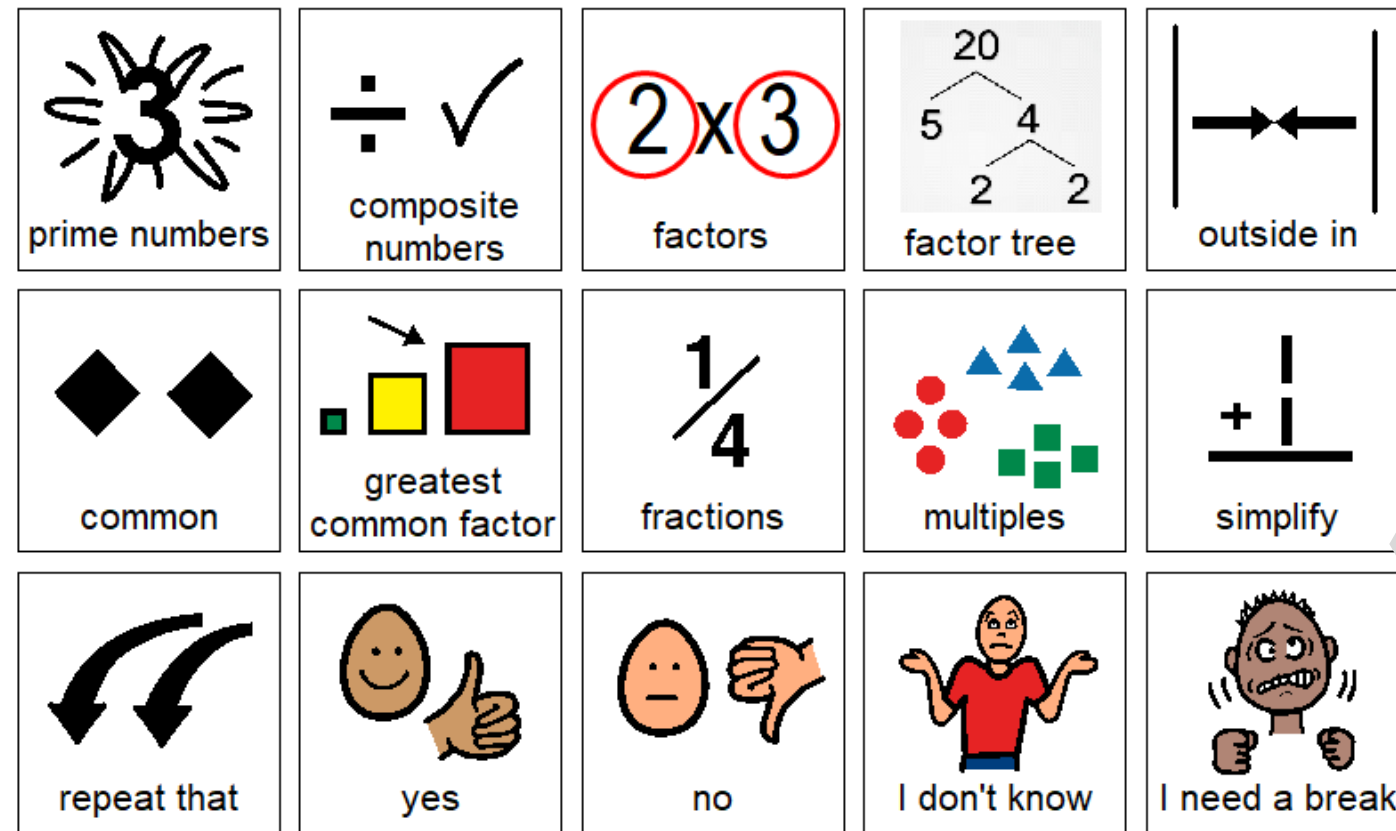


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This unit contains a book that is 30 pages and covers different ways to find common factors as well as prime numbers. It comes in a pdf version as well as an mp4 version that is animated and narrated.

This unit comes with a vocabulary board.

Vocabulary boards are great for ALL students to assist with participation and engagement in group discussions.



Tips on how to use in the unit!!

Prime Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

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Prime Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Prime Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

There are 3 sizes of prime numbers boards included in color and black and white. They can use when working through problems.

GROUP ACTIVITIES FOR GREATEST COMMON FACTOR UNIT

Scavenger hunt

Here is what you will need:

- Index cards with numbers written on them (make multiples of each number); do numbers as high as you need depending on the factors you will be finding

How to play:

- Place the number cards around the room
- Write a number on the board
- Students walk around and find 1-2 factors for that number
- Bring the matches back to the table and share which they found
- Can also play by having students walk around looking for prime numbers rather than factors for a particular number

Go Fish

Here is what you will need:

- Use a deck of cards
- Either take the jacks, queens, and kings out of deck, or assign them specific numeric values
- Numbers 2-30 written on index cards

How to play:

- Give each student 7 cards
- Place remaining playing cards in a pile in the middle of the table
- Place the index cards face down in the middle of the table
- When it is your turn, pull an index card and ask one other player, "Do you have any factors for X?" (The number on the index card)
- The other player hands over any factors they have for that number.

- If the ot
- Place a
- Discard
- The nex
- pile of unus

Prime Number War

Here is what you will need:

- Write the prime number on index cards (make 2-3 sets)

How to play:

- Divide the cards into even piles depending on how many students are playing
- Play as you would a normal game of war

Prime Number Scavenger Hunt

Here is what you will need:

- Prime number boards

How to play:

- Take a walk around the school looking for as many prime numbers as you can find

I Spy

Here is what you will need:

- Prime number board for each student

How to play:

- Have a number written on an index card or place students cannot see
- Start giving students clues as to which number you are holding
 - Composite or prime
 - A factor of _____
 - Greater or less than _____
 - Even or odd
 - Which row or column it is located
- Have students place a marker on the number they think you are holding

Block Towers

Here is what you will need:

- Write numbers 1-20 on some blocks (Jenga blocks work well); you will need a set for each student, or they can take turns
- Numbers 1-20 on index cards

How to play:

- Draw an index card
- As a group complete the outside in chart to find all the factors for that number
- Find blocks with corresponding numbers and build them in a tower
- If using Jenga blocks, build them tall wise to make it more challenging

Speed Matching

Here is what you will need:

- Set of playing cards with jacks, queens, and kings removed

How to play:

- Place the playing cards face up in the middle of the table
- Write a number on the board
- Students race to find the factors for that number in the pile
- You can also give clues like any prime numbers less than 10
- You can also play this game by rolling 2, 3, or 4 dice and having students find the factors for the number rolled

Paper plate toss

Here is what you will need:

- paper plates with numbers written on them (go as high as you have room for)
- bean bags

How to play:

- Place paper plates with numbers showing around the room
- Variation 1: students toss a bean bag trying to get it to land on a plate with a prime number
- Variation 2: write a number on the board and students toss beanbags to land on the factors for that number

Bingo

Here is what you will need:

- Write the prime number on index cards
- Prime number bingo card for each student
- Bingo markers

play:

See the bingo game included in this unit for variations on how to play bingo

Turnover

Here is what you will need:

- Write the numbers 1-30 on index cards
- 5 dice

play:

- Divide the index cards evenly amongst students
- Students place index cards face up in front of them
- Roll the 5 dice
- Students turn over any factors they have for that number
- Winner is the first to turn over all their cards

There are 10 different group activities you can do that involve prime numbers and finding the greatest common factor.

Bingo cards



- Included are 10 bingo cards in color and 10 bingo cards in BW.
- Place the cards in page protectors or laminate for long term use.
- This is a great way to practice recognizing prime numbers reviewed in this unit.
- Cut apart a set of the vocabulary cards to use as the calling cards.
- To download a quick list of 10 ways to play bingo, [CLICK HERE](#) (Note: not all of these will apply to this bingo game as it is using numbers and not vocabulary words, but there are still some good ideas you can use!!)
- To get detailed directions on how to play these 10 different games including different ways to mark the board to increase engagement, then visit this blog post:
 - <https://specialneedsforspecialkids.org/2022/01/31/10-ways-to-play-bingo-in-your-special-education-classroom/>

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Prime Numbers

19	2	13	47	
59	41	79	53	
71	73	FREE	31	3
11	83	61	89	67
17	5	7	43	29

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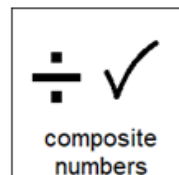
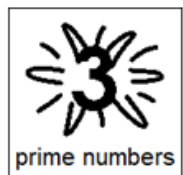
There are 20 Bingo cards and suggestions for how to use them included.

differentiated

Color in all the prime numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Students will color in prime numbers on a hundreds board. There is a differentiated version included for students who need more support.

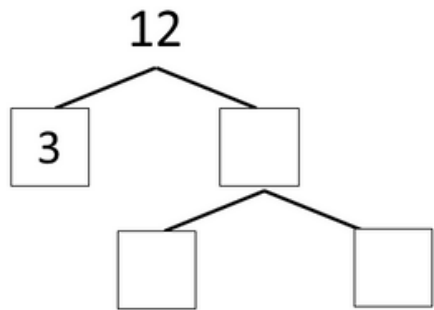
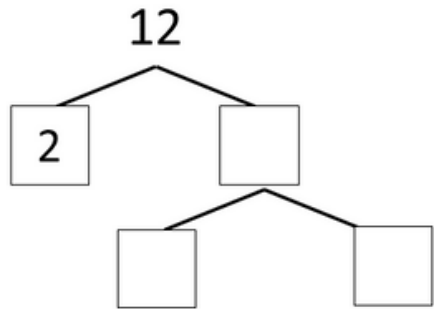


1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30

There is a sorting activity where students will sort prime and composite numbers. Suggestions for differentiation are included.

Name: _____

1. Fill out the factor trees (either write in numbers or paste in numbers provided.)
2. Circle the prime numbers



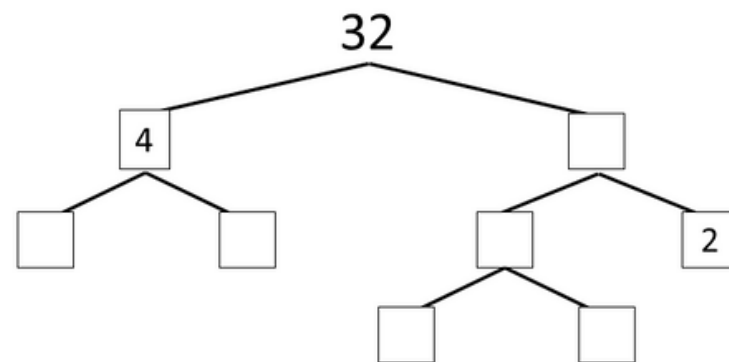
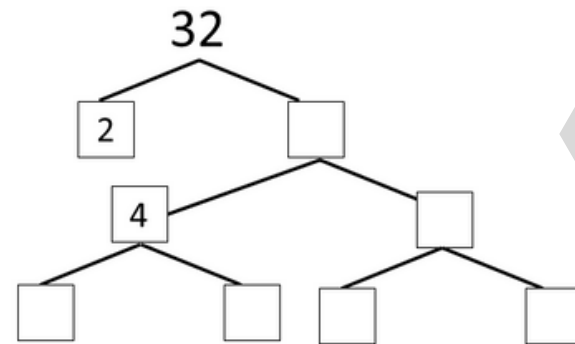
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Optional numbers to use.

2	2	2	2	2	2	2	2	2	2
2	2	2	2	2	2	2	2	2	3
3	3	3	4	4	4	4	4	4	5
6	6	8	8	9	10	12	16		

Name: _____

1. Fill out the factor trees (either write in numbers or paste in numbers provided.)
2. Circle the prime numbers



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There are 5 worksheets where students will practice filling our factor trees and identifying prime numbers. Students can write in numbers or use the cut and paste numbers provided.

Name:

1. Fill in the factor chart working from the outside in (either write in numbers or paste in numbers provided.)
2. Circle the prime numbers

8

--	--	--	--

12

--	--	--	--	--	--

16

--	--	--	--	--

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Name:

1. Fill in the factor chart working from the outside in (either write in numbers or paste in numbers provided.)
2. Circle the prime numbers

18

--	--	--	--	--	--

20

--	--	--	--	--	--

24

--	--	--	--	--	--	--	--

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There are 3 worksheets for students to fill in outside in charts and identify prime numbers.

Name:

- Using the inside out method, find the factors for each pair of numbers.
- Circle the greatest common factor.

8, 24

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Greatest common factor:

12, 16

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Greatest common factor:

14, 20

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Greatest common factor:

Name:

- Using the inside out method, find the factors for each pair of numbers.
- Circle the greatest common factor.

10, 25

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Greatest common factor:

4, 28

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Greatest common factor:

28, 36

Greatest common factor:

There are 5 worksheets for students to fill in outside in charts looking for common and greatest common factors for a set of numbers.

Name: _____

Quiz

1. What do you call a whole number that cannot be divided by any whole number, other than itself, evenly?



prime number



composite number



fraction

2. Circle all the prime numbers. (use your chart)

7 12 13 23 25 29 30

3. What are whole numbers multiplied together to get another number are called?



multiples

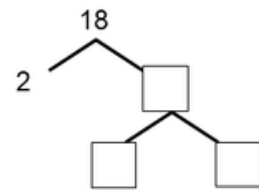


prime number



factors

4. Fill in the missing number on this factor tree:



5. Continue filling out the outside in chart for the number 24.

1		3		6		12	
---	--	---	--	---	--	----	--

6. Look at the factors for 18 and 36. Circle the **greatest factor**.

18 >> 1, 2, 3, 6, 9, 18

36 >> 1, 2, 3, 4, 6, 9, 12, 18, 36

7. Fill out the outside in charts below and find the greatest common factor between the 24 and 32.

24

--	--	--	--	--	--	--	--

32

--	--	--	--	--	--

Greatest common factor =

--

There is a short quiz to use as the assessment.

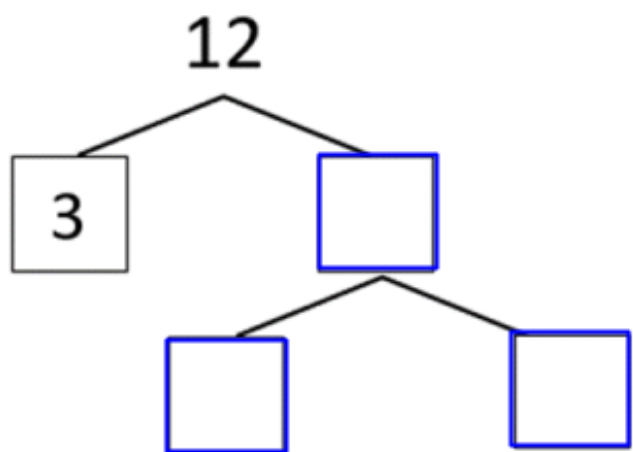
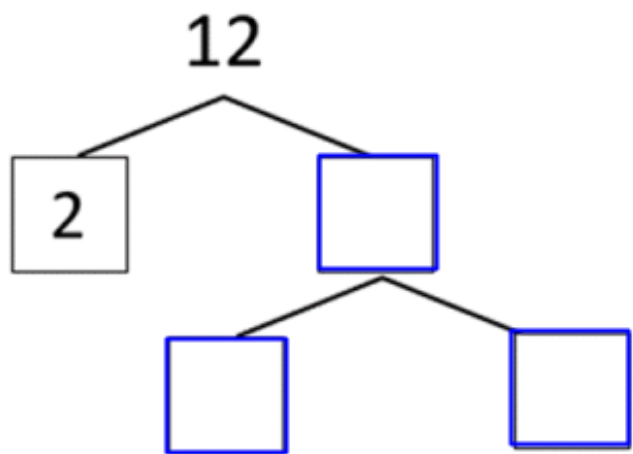
Watch the video on finding the greatest common factor

Greatest Common Factor

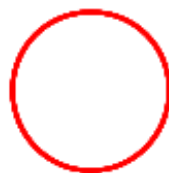
By Christa Joy



This unit includes digital activities. Part of that is a movie version of the book you can play in a google slide. This movie is animated and narrated.



1. Fill out the factor trees (type in the numbers)
2. Circle the prime numbers



There are 2 sets of google slides that include a set where students can type in the answers.

8

1	2	4	8
---	---	---	---

12

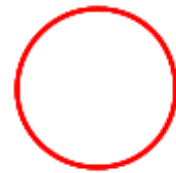
1	2	3	4	6	12
---	---	---	---	---	----

16

1	2	4	8	16
---	---	---	---	----

1. Fill in the factor chart working from the outside in
2. Circle the prime numbers

1	2	3	4
6	8	12	16



One set is differentiated with color and click and drag numbers for students who need more support. In this set, students are NOT typing but clicking and dragging over their answers.



I realize there will be some students out there unable to do cutting activities. I have a blog post with ways to complete activities without a pair of scissors!!

[**Click Here to read more!!**](#)