

Factor Flip

TEACHER DIRECTIONS

Use this game as an introduction or review of the concepts of “factors” or “prime” and “composite.” If your children have a basic understanding of factors, they can play this game without knowing what prime and composite numbers are. In fact, if they *don't* know about prime and composite numbers, this game is the perfect way to help your students build their own understanding of the difference between those types of numbers. I have used this game for years to introduce the idea of prime and composite numbers, and the students are always excited to discover an important idea about numbers all on their own.

As your students play, they will spin numbers and place and/or flip tokens on the factors of the numbers they spin. The kids will quickly notice that the token on the number 1 is constantly being flipped, allowing for a mathematically-rich discussion about 1 being a factor of every number.

Before long, your students will realize that certain numbers are “good” to spin and others are “bad” to spin. Have your students make a chart in their journal and sort the numbers on the spinner into those that are good to spin and those that are not. Discuss the reasons why certain numbers are good and others are not, prompting your students to use mathematical language. The students may initially identify all the even numbers are good to spin and the odd ones as not good to spin; this will give an opportunity to compare even numbers such as 2 and 4 to odd numbers like 9 and 15. In these cases, the odd numbers have the same amount of (or more) factors as the even numbers.

As your discussion continues, you can have students compile a list of the numbers that only allow a player to place and/or flip two tokens. Once you have that list, create a similar list of numbers that let a player place and/or flip three or more tokens. When the lists are done, you can introduce the terms prime and composite as the titles for those lists. Extend the discussion by having the students identify numbers NOT on the spinner that would fit in each category. Finally, bring the students' attention to the one number that fits in neither category: 1. Clarify that 1 is a special number that fits in neither category since it has only 1 factor: itself.

If you use this game to introduce the concept of “prime” and “composite”, you should not provide the resource sheet the first time your students play. This will force the kids to be more active thinkers about the numbers they are spinning and covering. Once you introduce the terms “prime” and “composite”, the resource sheet will allow kids to play the game a little quicker and build more automaticity with identifying the factors of numbers through 20.

I hope your kids enjoy the game! Dennis McDonald

Factor Flip

object: to be the first person to get four tokens in a row

number of players
2

materials
<ul style="list-style-type: none"> * <i>Factor Flip</i> board and spinner * two-sided tokens, with a different color on each side * <i>Factor Flip</i> recording sheet

procedure:

1) Player one spins the spinner and lays a token on all spaces whose numbers are factors of the number rolled.

EX: Red rolls '12', and lays tokens on 1, 2, 3, 4, 6, and 12.

Player one records the number spun and lists the factors covered.

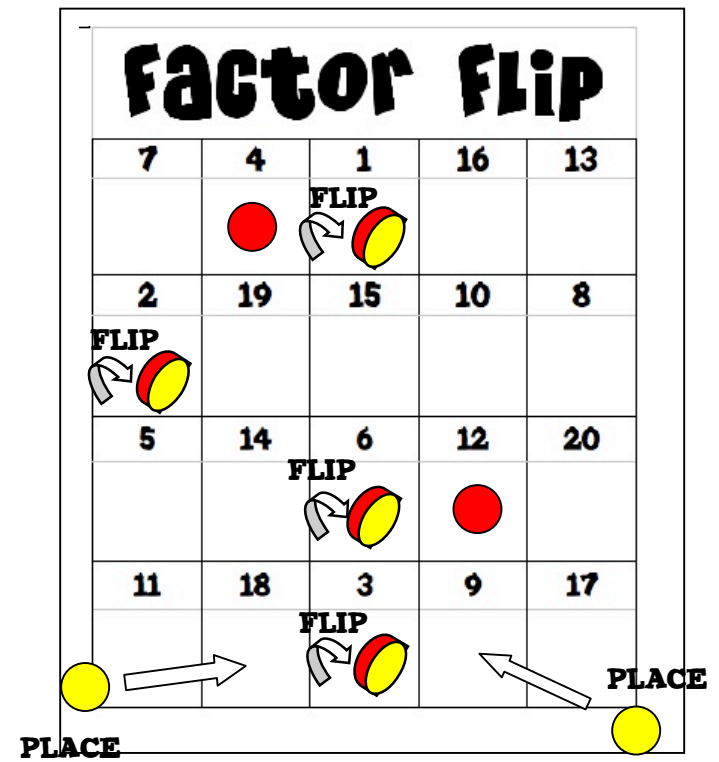
2) Player two spins the spinner and –

- lays tokens on all open factors of the number rolled
- flips over all tokens already on factors of the number rolled

EX: Yellow spins '18', lays tokens on 9 and 18 [the two open factors of 18], and flips over the tokens on 1, 2, 3, and 6 [the factors of 18 that already have tokens on them.]

Player two records the number spun and lists the factors covered.

3) Play continues until one player has four of his or her colored tokens in a row.

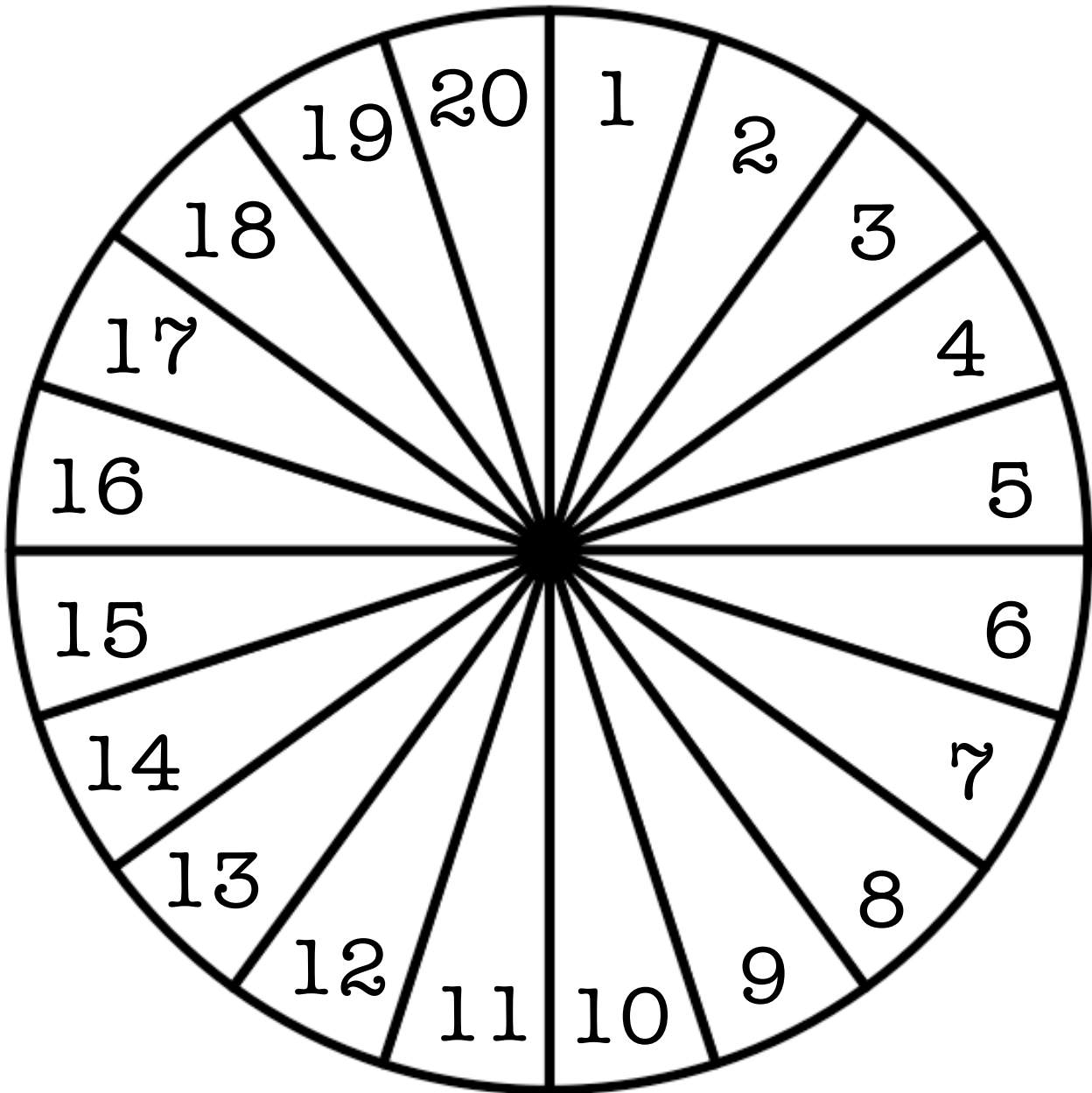


Factor FLIP

7	4	1	16	13
2	19	15	10	8
5	14	6	12	20
11	18	3	9	17

Factor Flip

spinner



Factor Flip

resource sheet

number:	1	2	3	4	5
		/\	/\	/\	/\
factor(s):	1	1 2	1 3	1 4 2	1 5

number:	6	7	8	9	10
	/\	/\	/\	/\	/\
factors:	1 6 2 3	1 7	1 8 2 4	1 9 3	1 10 2 5

number:	11	12	13	14	15
	/\	/\	/\	/\	/\
factors:	1 11	1 12 2 6 3 4	1 13	1 14 2 7	1 15 3 5

number:	16	17	18	19	20
	/\	/\	/\	/\	/\
factors:	1 16 2 8 4	1 17	1 18 2 9 3 6	1 19	1 20 2 10 4 5

Factor Flip

recording sheet

# spun	factors
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

# spun	factors
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Factor Flip – recording sheet

Factor Flip

recording sheet

# spun	factors
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

# spun	factors
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Factor Flip – recording sheet