

Lesson Printables

Be a rockstar and only
print what you need!



Lesson Information Sheet: 2

Sunlight Zone

Game: 3

Optional Place Value Table: 4

Twilight Zone

Game: 5

Optional Place Value Table: 6

Midnight Zone

Game: 7

Optional Place Value Table: 8

Let's expand numbers by playing a game

Why learn this?

Learning how to expand numbers is an important skill that allows students to identify the value of each digit in a number, thus helping students to understand the difference between ones, tens, hundreds, etc. Knowing how to expand numbers will help students order numbers and is applicable when solving math problems that include any of the four operations.

How do you play the Expandables?

Goal

- Play 6 rounds without going over the target number.

Rules

- Students will need playing cards to play this game.
 - Get rid of Jacks, Queens and Kings.
 - 10s = 0 and Aces = 1.
- Each learning zone has a target number that students are trying to reach without going over.
- Students flip over the number of cards that match their learning zone.
- Students flip over 2 new cards. They should cross reference these numbers with the action cards. It will tell them which place value columns they can earn points from.
 - Students can only choose one card to play, so they will need to apply strategy in order to not go over the target number.
- After each round, students need to add up their overall points.
- They must play 6 rounds of the game.
- If students go over the target number, it doesn't matter. This simply adds an element of jeopardy and number sense application to the game.

2 player game

- The player who gets closest to the target number wins a point.
- The first player to win 3 points wins the whole game.
- This version could be adjusted, so you only play 3 rounds before trying to reach the target number. In this case, you might wish to use a smaller target number.

Let's warm up!

Starter Activity - Crazy Connection

- Students are invited to use their critical thinking skills to see how many different math wonderings or ideas they can connect to a photo of a sports stadium. Students can use their number, shape and space knowledge, measurement or data collection knowledge to tackle this challenge.

To support, students could:

- Be guided to look for number connections, shape connections, measurement connections, etc.

To challenge, students could:

- Find at least six connections.
- Be pushed to see if they can find fraction connections, money connections, time connections, capacity connections, probability connections, etc.

Let's do this!

Main Activity - Students can play the Expandables game in order to show their understanding of the value of each digit in a number.

To support, students could:

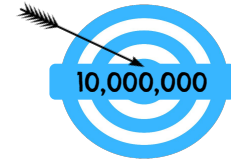
- Use place value charts found in the printables below to organise their thinking.
- Work with 7-digit numbers. See Sunlight Zone.
- Use a calculator to add up their points.

To challenge, students could:

- Work with 8-digit or 9-digit numbers.
- Add strategy to the game and move around their cards before playing their action cards/dice.
- Students could try to get the target number exactly or as close as possible.



Sunlight Place Value Pointers



1. To play this game you will need playing cards.
2. Flip over 7 playing cards to make a 7-digit number.
 - Take out the Jacks, Queens and Kings.
 - Aces = 1 and 10s = 0.
3. Flip over 2 new cards.
 - Look at the Action Cards to see what points you could score.
 - You can only play one of the cards that you flipped.
4. Add up your score after each round.
 - You must play 6 rounds in total.
5. How close can you get to the target number without going over?

Action Cards

Ace = Ones value

2 = Tens value

3 = Hundreds value

4 = Thousands value

5 = Ten Thousands value

6 = Hun Thousands value

7 = Millions value

8 = Ten Millions value

9 = Millions value

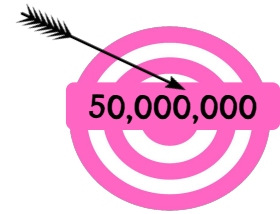
10 = You choose!

Number	Points Scored	Total

Optional Place Value Chart

M	H Th	T Th	Th	H	T	O

Twilight Place Value Pointers



1. To play this game you will need playing cards.
2. Flip over 8 playing cards to make a 8-digit number.
 - Take out the Jacks, Queens and Kings.
 - Aces = 1 and 10s = 0.
3. Flip over 2 new cards.
 - Look at the Action Cards to see what points you could score.
 - You can only play one of the cards that you flipped.
4. Add up your score after each round.
 - You must play 6 rounds in total.
5. How close can you get to the target number without going over?

Action Cards

Ace = Ones value

2 = Tens value

3 = Hundreds value

4 = Thousands value

5 = Ten Thousands value

6 = Hun Thousands value

7 = Millions value

8 = Ten Millions value

9 = Millions value

10 = You choose!

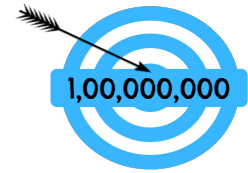
Number	Points Scored	Total

Optional Place Value Chart

T M	M	H Th	T Th	Th	H	T	O

Midnight Place Value Pointers

1. To play this game you will need playing cards.
2. Flip over 9 playing cards to make a 9-digit number.
 - Take out the Jacks, Queens and Kings.
 - Aces = 1 and 10s = 0.
3. Flip over 2 new cards.
 - Look at the Action Cards to see what points you could score.
 - You can only play one of the cards that you flipped.
4. Add up your score after each round.
 - You must play 6 rounds in total.
5. How close can you get to the target number without going over?



Action Cards

Ace = Ones value

2 = Tens value

3 = Hundreds value

4 = Thousands value

5 = Ten Thousands value

6 = Hun Thousands value

7 = Millions value

8 = Ten Millions value

9 = Hun Millions value

10 = You choose!

Number	Points Scored	Total

Optional Place Value Chart

H M	T M	M	H Th	T Th	Th	H	T	O