MaPP Challenge '18

Mathematical Puzzle Programs

MaPP Challenge '18

Part I

Game Overview

MaPP Challenge '18
Credits

Thanks for downloading the puzzle booklet for **MaPP Challenge '18** by Mathematical Puzzle Programs. These puzzle materials are provided as-is for use in the classroom (or anywhere else!) to help showcase the fun of mathematical problem-solving.

When the MaPP Challenge '18 is over, we'd love your feedback on how to improve this booklet. You can contact us by email at info@mappmath.org. Or better yet, submit an issue or pull request at our GitHub page at `https://github.com/MaPPmath` directly.

More information on Mathematical Puzzle Programs may be found at our website `http://mappmath.org` and on our Twitter @MaPPmath. Happy mathematical puzzling!

- MaPP Directors and Volunteers

Mathematical Puzzle Programs Staff

- Steven Clontz — Director

- Braxton Carrigan — Associate Director

- PJ Couch — Associate Director

- Zachary Sarver — MC18 Game Designer

MaPP Challenge '18 Featured Puzzle Designer

- Eric Harshbarger — Freelance puzzle and game designer, Auburn, AL

MaPP Challenge '18 Puzzle Designers

- PJ Couch — Lamar University, Beaumont, TX

- Danielle Dobie — Mathematician and freelance puzzle designer, New Ulm, MN

- Christopher Night — Google Inc., Boston, MA

- Harold Reiter — University of North Carolina at Charlotte, Charlotte, NC

- Zachary Sarver — Auburn University, Auburn, AL
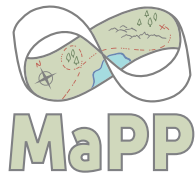
Special Thanks

- Ronimo Games, for the use of the Awesomenauts brand and artwork in Puzzle 4.

Attribution

Civic Duty
Mobimon tamers need your help!

The Mobimon in **Wenge** are running wild! All of the city utilities that are powered by Mobimon are offline. The citizens of Wenge don't have electricity, clean water, or even cell phone signal! **Eight utilities** have been disrupted in total.

1. Electricity, powered by the lightning Mobimon **Electrumble**,

2. water, powered by the moisture Mobimon **Floobles**,

3. traffic lights, controlled by the temporal Mobimon **Tiktok**,

4. garbage, incinerated by the flame Mobimon **Burnie**,

5. cell phone access, routed by the data Mobimon **Ayepey**,

6. sewage, treated by the filter Mobimon **Stankgunk**,

7. street lights, controlled by the photosensitive Mobimon **Forluxi**,

8. and ambulance sirens, controlled by the noisy Mobimon **Sonitus**.

Luckily Wenge has 86 Mobimon tamers on staff and they will need **all of them** to restore service. They've picked up a few tricks for **how many tamers** should work with each different utility Mobimon.

- Forluxi needs the fewest tamers.

- Tiktok needs the most tamers.

- Ayepey and Sonitus need the same number of tamers. No other two Mobimon need the same number of tamers.

- The number of tamers needed by Burnie and Forluxi differ by one.

- Burnie and Ayepey need 9 trainers between the two of them.

The four strongest of the utility Mobimon need some **extra tricks**!

- Each of Electrumble, Floobles, Tiktok, and Stankgunk need a two-digit number of tamers.

- Eletrumble is particularly picky, and needs a perfect square number of tamers.

- Electrumble, Floobles, and Stankgunk each need an even number of tamers.

- The number of tamers needed by Electrumble and the number of tamers needed by Floobles has something in **common**.

- The number of tamers needed by Floobles and the number of tamers needed by Tiktok also has something in **common**.

- The number of tamers needed by Tiktok and the number of tamers needed by Stankgunk also has something in **common**!

- But the number of tamers needed by Tiktok and the number of tamers needed by Electrumble doesn't have much in common.
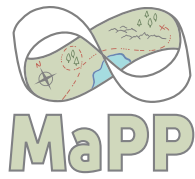
Every Mobimon adventure is about becoming the very best, and helping out the city of Wenge should tell you something about **what kind of trait a Mobimon champion should have**. Also, the mayor promised to give you his **strongest Mobimon** as a reward! Sweet!

Part II

Bonus Puzzle
Gotta snag 'em all in the Expedition Zone!

Bonus Puzzle
Catch Mobimon in the Expedition Zone!

Take a trip through the **Expedition Zone** to catch as many Mobimon as you can! Theres a catch, though: your path through the Expedition Zone has to follow certain **path pieces.** Here are the rules:

1. Two path pieces are adjacent if at least one square in one piece is orthogonally (**not diagonally**) adjacent to at least one square in the other piece.

2. You must have a path piece adjacent to the **starting line**.

3. You must have a path piece adjacent to the **finish line**.

4. You may not have any breaks in your path. It must be an **unbroken path** of adjacent pieces from start to finish.

5. Your path may cross itself.

You may notice several Mobimon inhabiting the Expedition Zone! These Mobimon are represented by **numbers,** and each number is its **strength.** To catch a Mobimon, you must

1. make sure your path goes over that Mobimon, and

2. a piece on that Mobimon must have **more squares than that Mobimon's strength**.

Your score is the **sum of the strengths of the Mobimon you catch**. The teams with the two highest scores get **Victory Points**! Good luck!

The Expedition Zone

Start														
						1								
												1	1	
1	3												1	
		3						1			2			
	4													
		3												
						2	2				3	1		
		4												
														4
		4	4											2
				1						2				2
							1							
				3		3					2			
														1
			1							2			1	1
Finish														

Path Pieces