

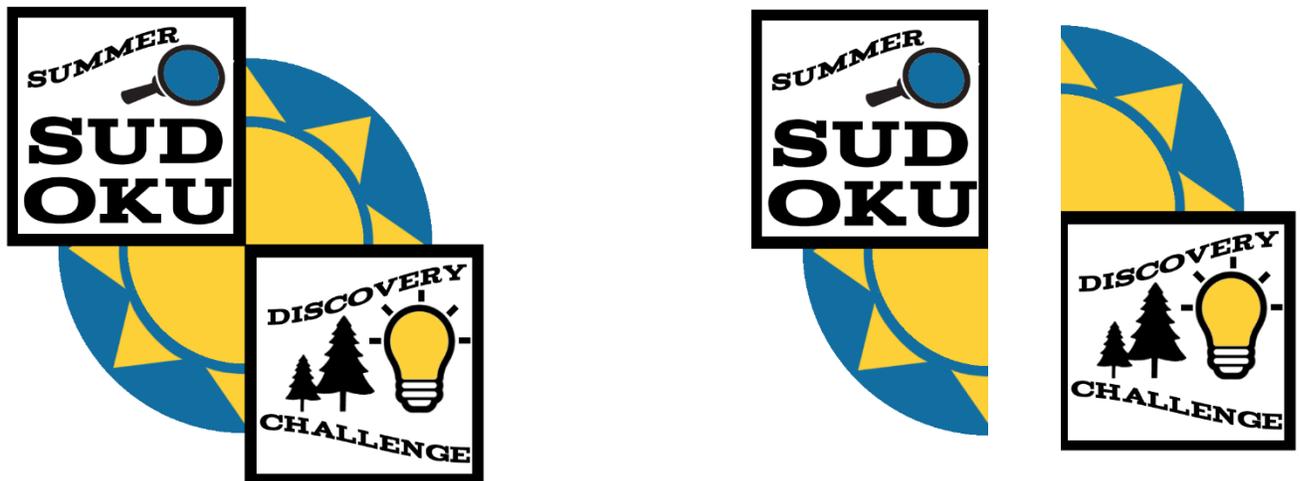
The Summer of SUDOKU Challenge

Patch Series

Learn the fun game of Sudoku while trying new science, technology, engineering, or math (STEM) activities, exploring the outdoors and nature, and pushing yourself to grow in new ways. Solve the Sudoku puzzle to figure out how many times you must complete each activity. Share photos of yourself doing one of the activities with

#GSAKsummerSUDOKUchallenge and tag Girl Scouts of Alaska.

Complete 8 activities from each Sudoku board to earn both halves in this special patch series.



Order your patch here:

<https://www.cognitofrms.com/Girlscoutsalaska/GSAKPatchOrderForm>

What is SUDOKU?

History

The history of Sudoku begins in 1783 when the incredibly influential mathematician Leonhard Euler devised 'Latin Squares'. This was a pattern for organizing numbers in a grid so that every number or symbol appeared once in each row or column. This was the core concept that would influence Howard Garns, a freelance puzzle inventor from Connersville, Indiana, USA to develop the modern game of Sudoku in 1979 under the name of "Number Place".

However, the game was not initially successful. It wasn't until 1984 when the number game debuted in Japan that it gained critical acclaim. The game was renamed "Sudoku," short for "Sūji wa dokushin ni kagiru". This phrase translates in English as, "Numbers are limited to singles" where "dokushin" means an "unmarried person". But why was Sudoku so popular in Japan but not in the United States? One possible reason is that the Japanese language doesn't work very well with crossword puzzles – so a number puzzle was much more accessible.

Sudoku's immense popularity would eventually spread back to the United States in the 2000's. *The Conway Daily Sun* in New Hampshire began producing Sudoku puzzles in their weekly newspapers in 2004, and in doing so began the rapid rise of Sudoku from relative obscurity.

Today, Sudoku is a global sensation with numerous variations for any skill level. However, present research shows that solving sudoku isn't just fun but also great exercise for the brain. A study by Dr. Nicola Ferreira in 2015 supports that the routine solving of such number puzzles correlates with improved brain function in aging populations. It has even been suggested consistent practice of Sudoku can slow the progression of conditions such as Alzheimer's.

Smith, David (May 15, 2005). "So you thought Sudoku came from the Land of the Rising Sun ..." *The Observer*.

Ksander, Y. (2007, May).

Hoosier Puzzlemaster I. Indiana Public Media. Retrieved from <https://indianapublicmedia.org/momentofindianahistory/hoosier-puzzlemaster-i/>

Ferreira, Nicola; Owen, Adrian; Mohan, Anita; Corbett, Anne; Ballard, Clive (2015). Associations between cognitively stimulating leisure activities, cognitive function and age-related cognitive decline. *International Journal of Geriatric Psychiatry*, 30(4), 422–430. doi:10.1002/gps.4155

How to play

A Sudoku puzzle is traditionally a 9x9 grid, however the rules are essentially the same for the 6x6 grids we will be solving in this activity.

The main rule to remember is that each number (1-6) can only appear once in each row, column, or outlined rectangle (sometimes called a block). Therefore, upon completion...

1. Each row should contain only the digits from 1 to 6, no repeats.
2. Each column should contain only the digits from 1 to 6, no repeats.
3. Each block should contain only the digits from 1 to 6, no repeats.

You can use this fact to reason which numbers belong in the blank spaces of the puzzle.

Tips and Tricks

- To start with a sudoku game, search for rows, columns or block with only a few digits missing.
- Start with the digit that is already often filled in the puzzle.
- If you manage to fill a certain digit, try to look whether you can fill that digit somewhere else.

Example

Here is an example of a 6x6-grid. Can you replace the “?” with a digit?

3	4	5	1		
6		?		5	4
			4	3	5
5	3	4	2	6	
1					2
	5	2	6	1	3

Sudoku rule 3 states that you cannot use any digit twice in a block. Since you already have 3,4,5, and 6, the “?” can be either the digits 1 or 2. Sudoku rule 2 states that you cannot use any digit twice in a column. However, you can see digit 2 at the bottom of the column. It means that in the box with “?” can be used only digit 1.

3	4	5	1		
6	?	1		5	4
			4	3	5
5	3	4	2	6	
1					2
	5	2	6	1	3

Sudoku rule 3 states that also in each block each digit can be used only once. You can use this rule here to fill the second “?”. It is the digit 2.

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Solve the Sudoku puzzle first to fill in the blanks of each activity!

Growth Mindset How fast can you complete a mile or 5K run/walk? Practice ___ times and try to improve your time.	Animal Action Choose ___ endangered or threatened animals of your choice. Research and find out how you can help. Take action!	3	Possibilities Playlist Create a list of at least ___ songs that make you feel good. Play it when you get stuck on a BINGO challenge.	1	Bug Hunt Turn over logs, dig in the dirt, and explore in the garden to find ___ different insects or bugs.
5	6	Girl Scout Camp Participate in GSAK Camp at least ___ time	3	2	Kindness Spread kindness in your community in ___ different ways.
Author/Illustrator Write and illustrate ___ book. Have a book reading/signing!	5	4	2	Coastal Creatures Check out what lives in the intertidal zone. Make a list of at least ___ creatures you find. <i>Check with an adult to be safe near the ocean.</i>	3
2	Poem Challenge Write ___ poems and perform it for friends or family.	6	4	5	1
Origami Make a ___ origami creations. Choose something that is challenging for you or make up your own.	1	2	Communication Choose ___ of your favorite words to learn in a foreign language or even sign language.	4	5
Left or Right Learn to write your name with your nondominant hand. Keep practicing ___ times!	4	Outdoor Art Take your creativity outside and draw, paint, bead, or do another craft in the sunshine or shade using at least ___ different materials.	1	Prepare Learn and practice ___ new first aid skills. Make a poster to show the steps of each skill.	Map Making Go on a walk or hike. Make a map showing where you went. Include ___ important landmarks on your map.

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Solve the Sudoku puzzle first to fill in the blanks of each activity!

6	4	New is Cool (and sometimes hard) Try ___ things that are brand new to you!	2	Minute Physics Watch ___ videos from the minutephysics channel on YouTube. https://tinyurl.com/GS AKminutephysics	Catapult! Build ___ catapult and test it out. https://tinyurl.com/GS AKcatapult22
STEM Challenge Build something that can fly or glide for at least 5 seconds. 10 seconds or more? Try ___ different designs.	5	1	Hour of Code Try an hour of code activity ___ times https://hourofcode.com/us/learn	Fast Facts Choose a topic you are interested in and learn ___ new facts. Exchange facts with a friend	Zoology Check out your ___ favorite animals on a zoo webcam
3	6	4	Watch it Grow Plant ___ different seeds and record the differences as they grow.	Oobleck Mix equal parts water and cornstarch to make Oobleck. Record its unique properties.	2
5	Budget Make a budget for ___ family meal, short outing, or other activity. Follow through and stick to the budget!	Earn Badges Earn ___ GSUSA STEM Badges for your age level. Look for new ones in Summer 2022.	4	3	6
Light up Make your own circuit. Create ___ card, poster or other craft. https://tinyurl.com/gsakcircuitcard	Speedy Fun Calculate how fast you can run, skip, or hop. Measure out a distance. Time yourself. Speed = distance ÷ time. Do this ___ times.	5	6	4	Sink or Float Explore density by testing ___ different objects to see if they sink or float. Then build a raft that will hold a small toy.
4	STEM in Action Identify ___ problems at home or in your community. Use recycled materials to build a solution to one.	6	Business Boss Take charge and start ___ business. You could try the classic lemonade stand or put your unique talents to work.	2	5