MYSTERY HUNT   PUZZLE CLUB

Instruction Booklet

Logic Puzzle Open

April 26, 2025 • 10 AM – 5:15 PM • Room 26-314

10:00 AM – 10:50 AM	**Round 1: "Pop Culture"** *Sudoku, Numberlink, Tango, Hidato, Nonogram*
11:00 AM – 11:50 AM	**Round 2: Point the Way** *Four Winds, Sashigane, Second Corner,* *Arrow Flow, Arrows (Irregular)*
12:00 PM – 12:50 PM	Lunch Break
1:00 PM – 1:50 PM	**Round 3: Powerhouses** *Nurikabe, Akari, Slitherlink, Heyawake (Irregular), Kakuro*
2:00 PM – 2:50 PM	**Round 4: Over the Horizon** *Multiplication Link, Tetrochain, San-Anko,* *Triomino Voxas, Tumbleweed Loop*
3:10 PM – 4:00 PM	**Round 5: Team Round**
4:00 PM – 4:50 PM	Contestant Social
5:00 PM – 5:15 PM	Awards

Competition Rules

You can have pens, pencils, sharpeners, erasers, rulers, blank papers, and a copy of this instruction booklet. We'll have extras for all of these, but don't rely on them. We won't print a copy of the full booklet for everyone, but we will print a copy of the last two pages for everyone.

Puzzle booklets will have the rules but not example puzzles.

Notation

Each section of this instruction booklet has five puzzle types. Each puzzle type comes with the rules, an example puzzle, and the solution to the example.

We'll use standard notation for example solutions, but **you can use whatever notation you want**, as long as you are consistent throughout a solution, and it is clear to us what you mean.

If multiple marks are in the same cell, we'll consider the largest such mark. This is to let you make small notes on the corners or edges of the cells without having to erase them. If we're not sure what the intended final mark is, we'll consider that cell blank.

Scoring

Each individual round is worth 100 points and has 15 puzzles. Puzzles that took testsolvers longer to solve are worth more points.

You'll be given full points for a correctly solved puzzle. You may get 80% partial credit for a solution with a minor error (e.g. 1 missing shaded cell), at our discretion.

If you finish early, say "Finished", and a proctor will collect your booklet. If all puzzles are solved correctly or with at most two minor errors, you'll receive 2 bonus points per saved minute. After finishing, you can leave the room, but make sure not to disturb anyone.

Divisions and Prizes

We have two divisions: Advanced and Beginner. Each division has different puzzles: for each genre, the Advanced division has a harder puzzle, while the Beginner division has an easier puzzle.

We have prizes for the top 5 solvers in each division, plus the next 5 MIT students. We might also have *special* awards, at our discretion.

The team round won't have prizes (other than bragging rights); just solve for fun!

Credits

Most instructions are copied from **Eric Fox**'s puzzle rules document.

Puzzles were constructed by **Barbitos, djmathman**, **ft029**, **jkittykitkat**, **Rever, Wessel,** and **yosh**.

Testsolvers were **bec, CJ, CJK, DireKrow, lumia, Rubrica, Tjm, Walker,** and **Wei-hwa.**

Tools used include **Penpa+**, **puzz.link,** and **Inkscape**.

Round 1: "Pop Culture"

These puzzle types have all broken into the mainstream in some way.

1.1–1.3 Sudoku

Place a number from 1 to N into each empty cell so that each row, column, and bold region contains every number from that range with no repeats, where N is the side length of the grid.

	1			6	
3					4
		5			
			6		
2					5
	4			3	

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

1.4–1.6 Numberlink (*a.k.a. Flow Free®*)

Draw non-intersecting paths through the centers of some cells, each connecting one clue to its equal counterpart.

Note: In these puzzles, every cell will be used by some path. Feel free to use this to your advantage.

1.7–1.9 Tango

Fill each cell with a black or white circle so that no vertical or horizontal group of three adjacent circles is the same color and each row and column contains an equal number of each color. Cells separated by an equals sign (=) must contain the same color. Cells separated by a cross (×) must contain different colors.

Note: For notation, you can either use black and white circles, or any set of two distinguishable symbols, like A and B, as long as you make it clear which represents which.
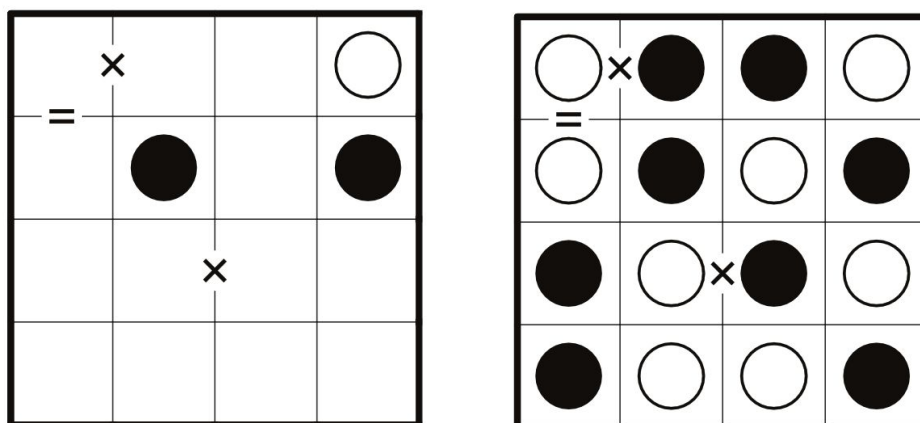
1.10–1.12 Hidato

Place a number from 1 to N into each cell so that every number appears once, where N is the total number of cells in the grid. Every number must be adjacent (orthogonally or diagonally) to all numbers in the grid that are consecutive with it.

Note: You can either place all numbers or draw a complete path.
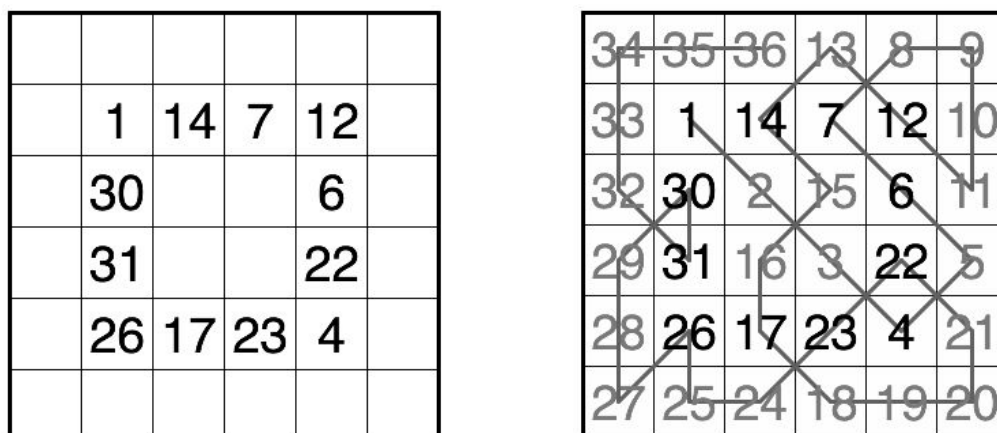
1.13–1.15 Nonogram *a.k.a. Picross, Paint by Numbers, or Pic-a-Pix*

Shade some cells so that the clues outside the grid represent the lengths of the blocks of consecutive shaded cells in the corresponding row or column, in order.

Note: Most puzzles resolve to a recognizable picture of some sort; this is not required for uniqueness, but you may find it helpful when solving. Puzzles which do not resolve to a picture are marked with a star.
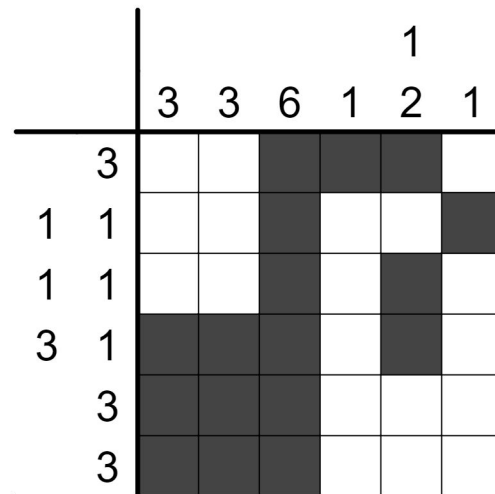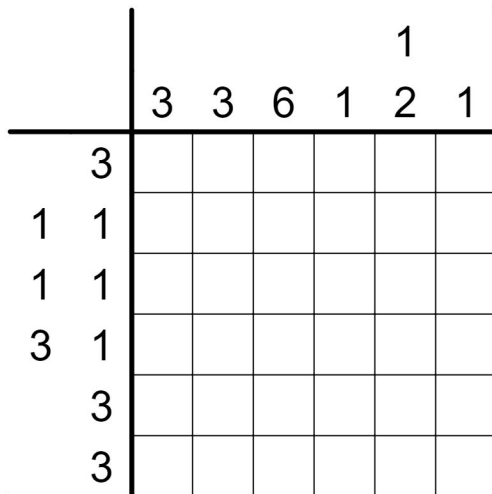
Round 2: Point the Way

These puzzle types involve arrows.

2.1–2.3 Four Winds

Draw one or more straight arrows extending from each clue so that each non-numbered cell is covered by an arrow. A clue indicates the sum of the lengths of the arrows extending from it. Arrows may not cross each other or clued cells.

Note: Drawing the arrowheads is not required.
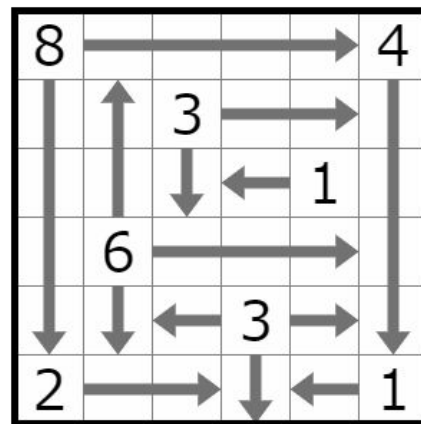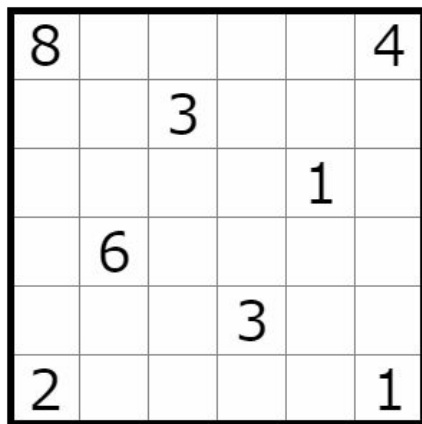
2.4–2.6 Sashigane

Divide the grid into regions of orthogonally connected cells. Each region must be an L shape with a width of one cell. Arrows must lie at one end of an L and point toward the bend. Circles must lie at the bend of an L, and if one contains a number, the L it's inside must contain the indicated amount of cells.
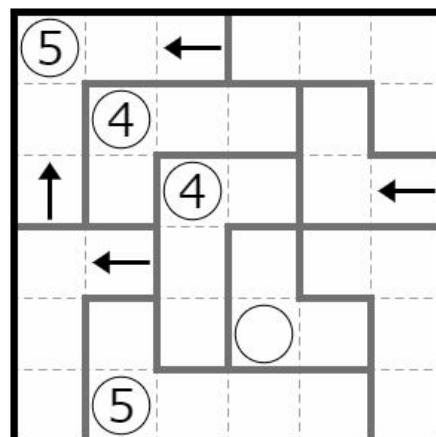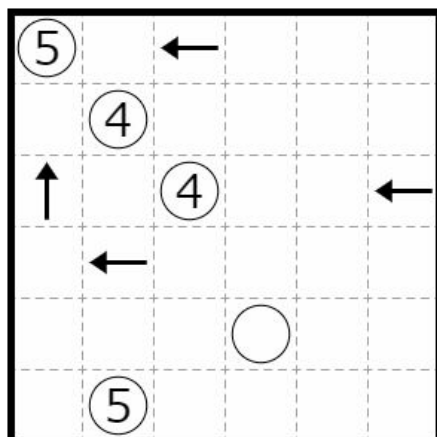
2.7–2.9 Second Corner

Draw a loop passing vertically and horizontally through all cells, including those with arrows. Arrows and numbers show the number of spaces to the second turn of the loop following the loop in the direction of the arrow. (The loop is not directed; arrows can go in either direction.)
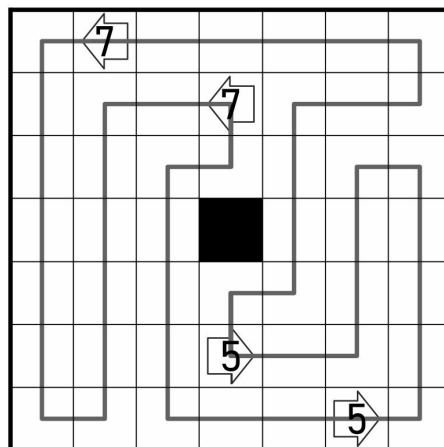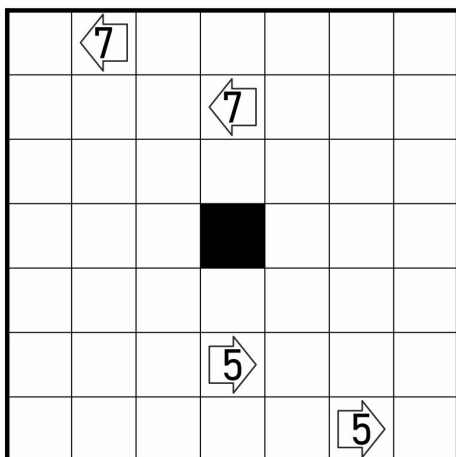
2.10–2.12 Arrow Flow

Place arrows pointing in four directions in each empty cell. The same arrows cannot be placed in adjacent cells.

Starting with any cell with an arrow, following the arrows from cell to cell, a cell with a number can be reached. A cell with a number indicates a total number of arrows that leads to this cell.
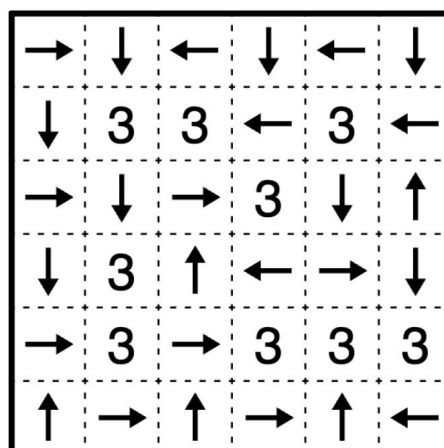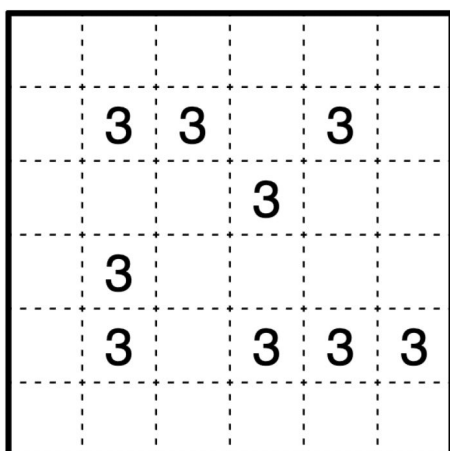
2.13–2.15 Arrows (Irregular)

Place an arrow into each empty cell facing one of the eight main directions. Each arrow must point to at least one gray cell inside the grid, and a number inside the grid indicates how many arrows are pointing at it.

Round 3: Powerhouses

These puzzle types are ubiquitous within logic puzzle circles.

3.1–3.3 Nurikabe

Shade some cells so that all shaded cells form one orthogonally connected area and no 2x2 region is entirely shaded. Clues cannot be shaded, and every orthogonally connected area of unshaded cells contains exactly one clue, the value of which represents the size of the area.
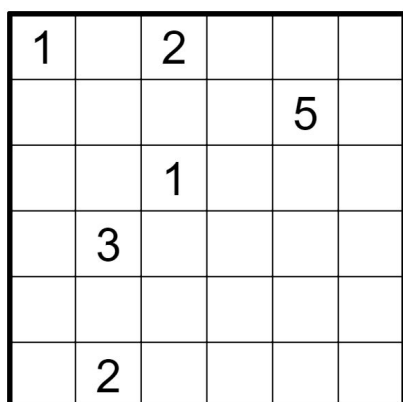
3.4–3.6 Akari

Place lights in some cells so that every cell is illuminated. Lights illuminate the cell they're in as well as all cells seen in a straight line horizontally or vertically, not obstructed by a black cell. Lights may not illuminate each other. Clues represent the number of lights in the (up to) four cells surrounding the clue.
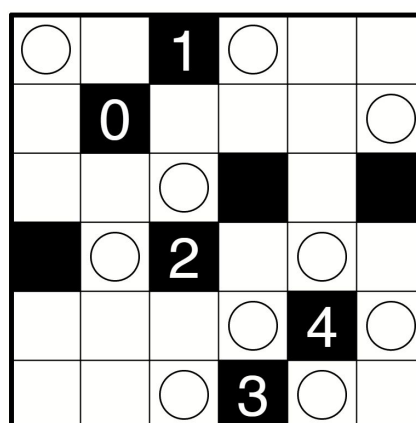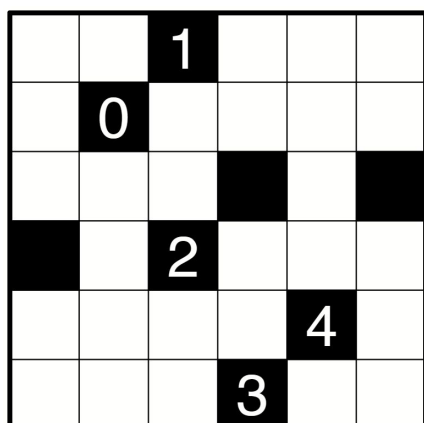
3.7–3.9 Slitherlink

Connect some pairs of orthogonally adjacent dots to form a single non-intersecting loop. Clues represent the number of edges drawn surrounding the clue (up to four).
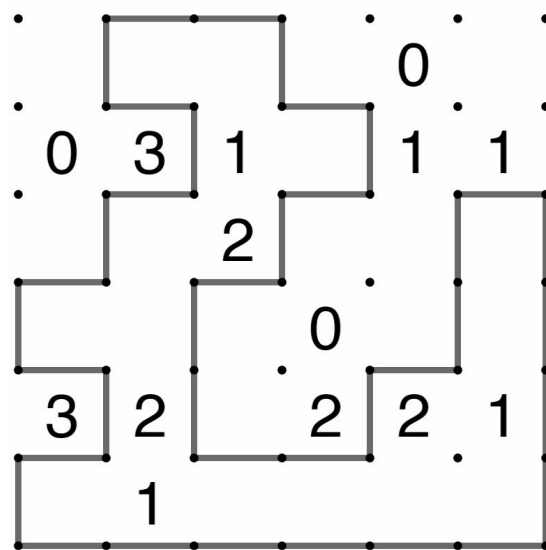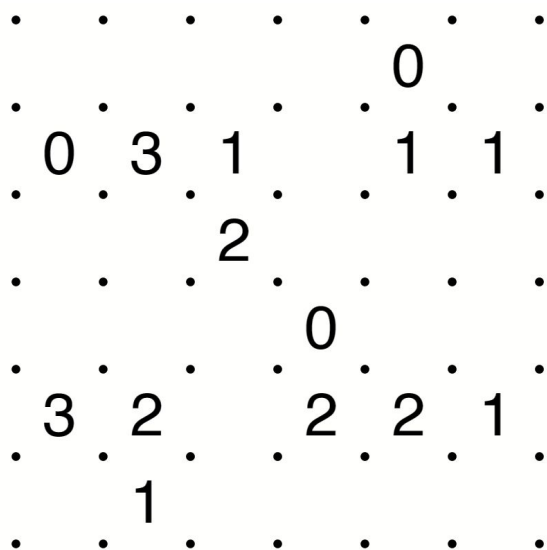
3.10–3.12 Heyawake

Shade some cells so that no two shaded cells are orthogonally adjacent and the remaining unshaded cells form one orthogonally connected area. Numbered regions must contain the indicated amount of shaded cells. A line of consecutive unshaded cells may not cross more than one bold border.
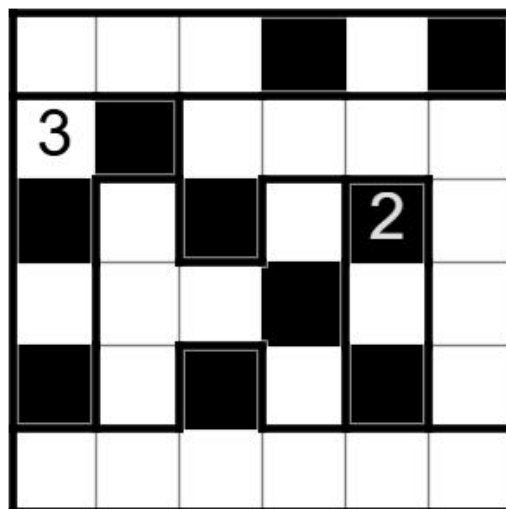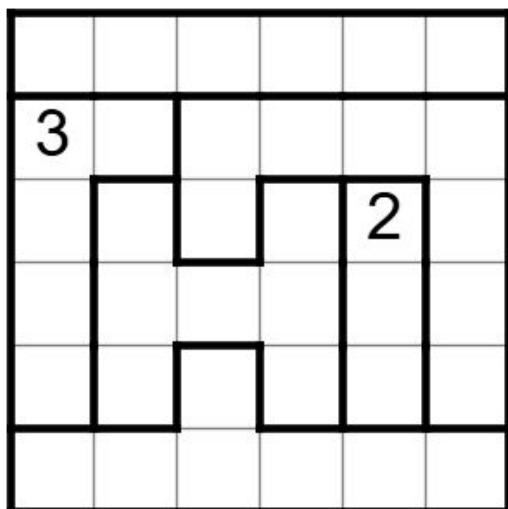
3.13–3.15 Kakuro

Place a number from 1 to 9 into each empty cell so that no number is repeated in any unobstructed horizontal or vertical line. A clue on the bottom of a blocked cell represents the sum of the numbers in the vertical line below it. A clue on the right side of a blocked cell represents the sum of the numbers in the horizontal line to its right. Clues cannot see numbers through other blocked cells.
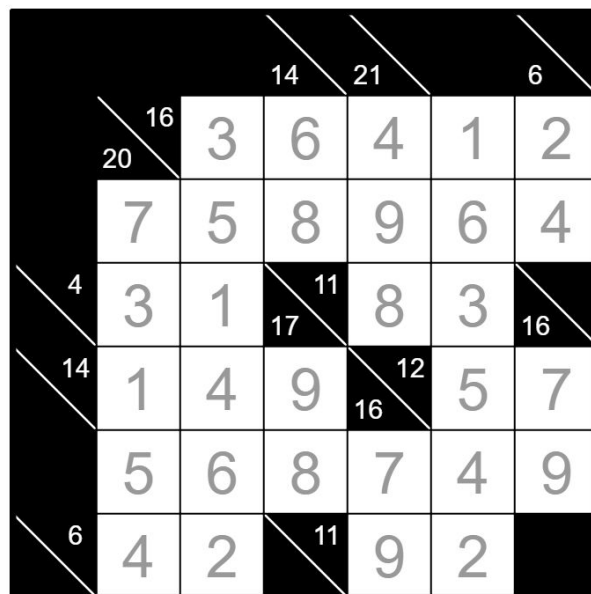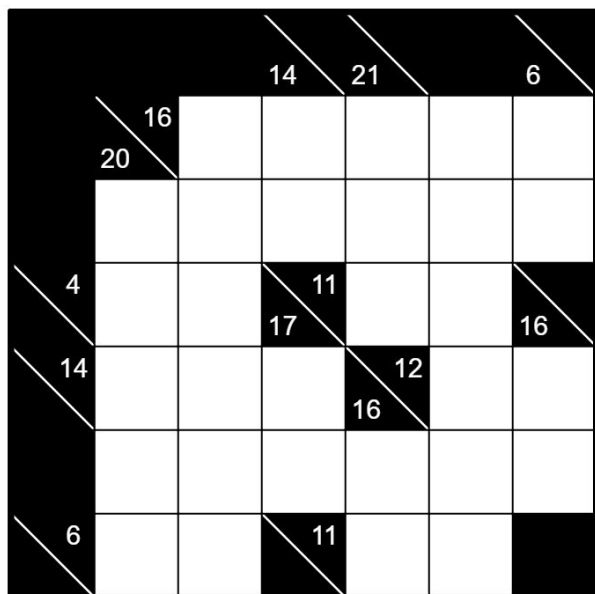
Round 4: Over the Horizon

These genres, new and old, show untapped potential.

4.1–4.3 Multiplication Link

Draw a loop through the grid that turns on every circle. A number tells the product of the segment lengths coming out of the circle.
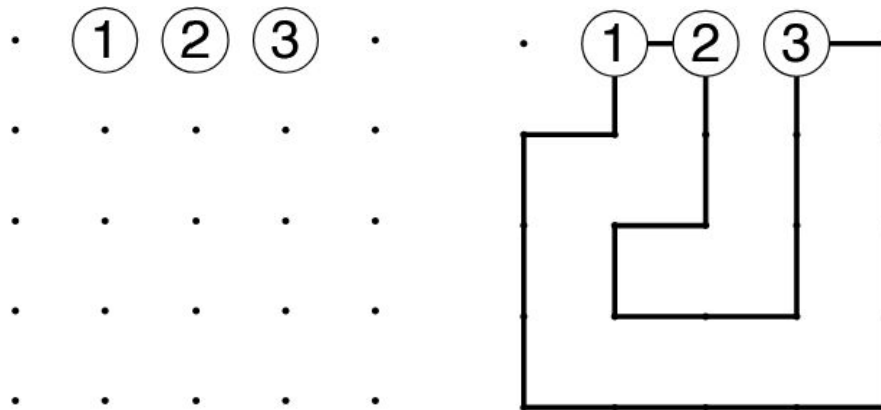
4.4–4.6 Tetrochain

Shade some tetrominoes of cells such that no two tetrominoes touch each other orthogonally, but all tetrominoes form one diagonally connected network. Two tetrominoes of the same shape may not touch diagonally, counting rotations and reflections as the same. Gray squares cannot be shaded, and clues represent the number of shaded cells in a straight line in the indicated direction.
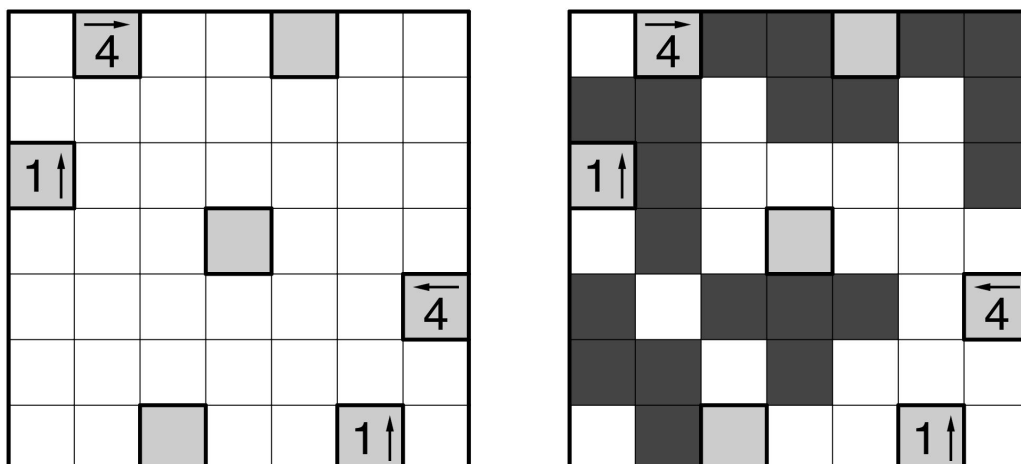
4.7–4.9 San-Anko

Place a number between 1 and 3 in some empty cells. Numbers must appear in groups of 3 orthogonally connected cells with the same number. Groups cannot touch at an edge. Clues on shaded cells indicate the sum of numbers in the (up to four) orthogonally adjacent cells.
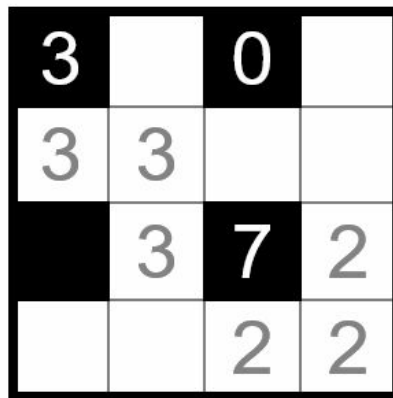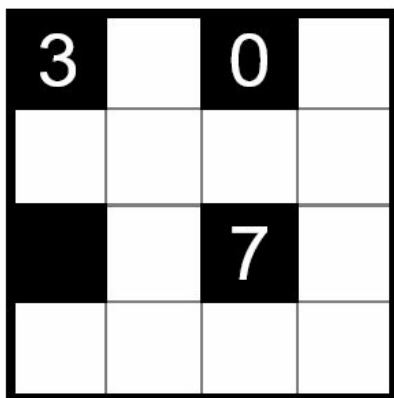
4.10–4.12 Triomino Voxas

Divide the grid into triominos. Given edges must separate two distinct triominos. A white circle indicates that the two triominos bordering the clue must have the same shape and orientation. A gray circle indicates that the two triominos bordering the clue must have the same shape, but not the same orientation. A black circle indicates that the two triominos have different shapes. Black squares are not part of the grid.
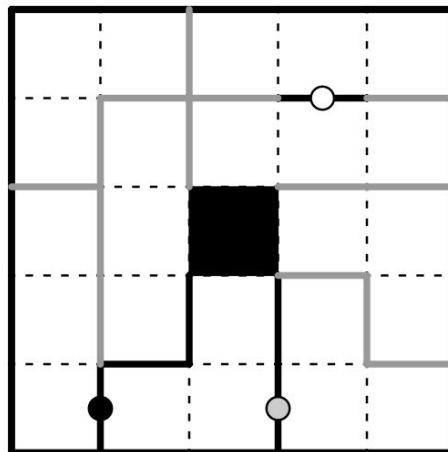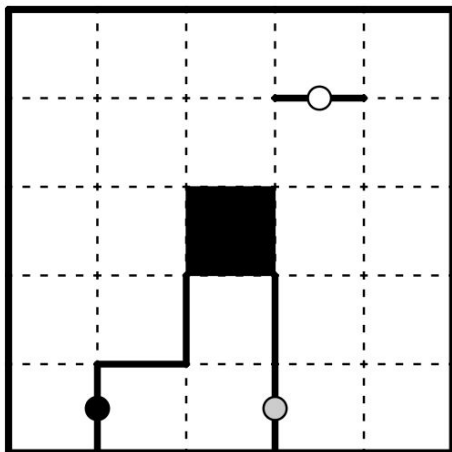
4.13–4.15 Tumbleweed Loop

Draw a single non-self-intersecting loop. Each hexagon must contain exactly one line segment joining two of its vertices. Line segments cannot lie on the edge of a hexagon. Two line segments touching a vertex cannot form a straight line (that is, the loop must turn at every vertex). White circles are inside the loop, while black circles are outside the loop.
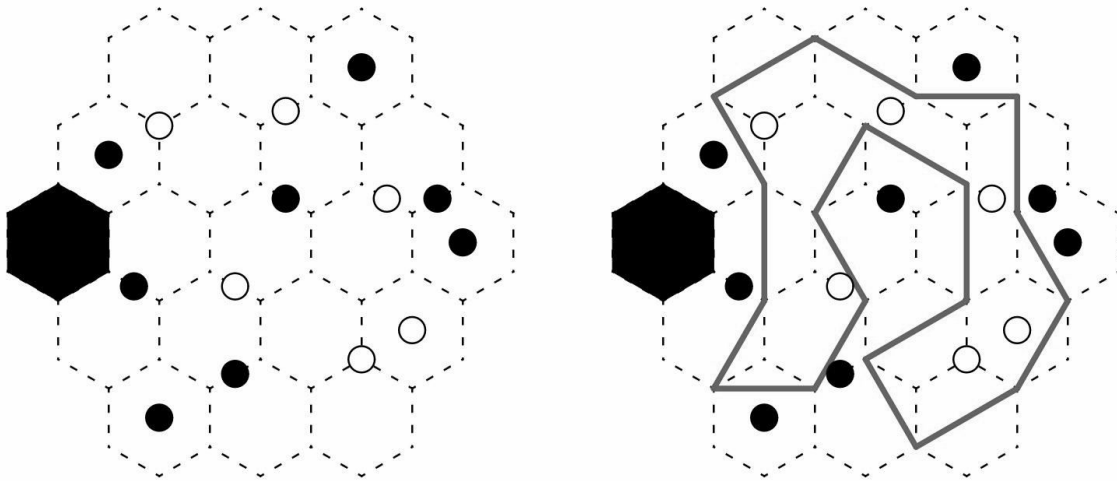
Round 5: Team Round

During the team round, teams will receive a large Cipher Slitherlink.

Connect some pairs of orthogonally adjacent dots to form a single non-intersecting loop. Clues represent the number of edges drawn surrounding the clue (up to four). Some of the clues are letters, which represent a specific number (0~3). Multiple letters can represent the same number.

Teams can consist of up to 6 people, though we recommend 3-4 people per team.

Here's an example puzzle and its solution.

Sudoku

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

Numberlink

Tango

Hidato

34	35	36	13	8	9
33	1	14	7	12	10
32	30	2	15	6	11
29	31	16	3	22	5
28	26	17	23	4	21
27	25	24	18	19	20

Nonogram

Four Winds

Sashigane

Second Corner
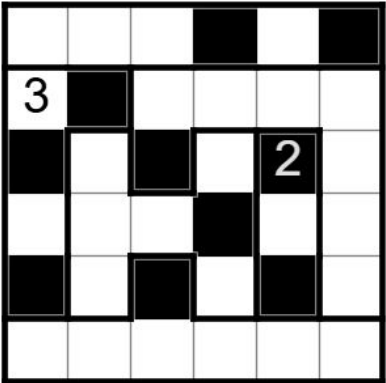
Arrow Flow

Arrows (Irregular)

Nurikabe

Akari

Slitherlink

Heyawake (Irregular)

Kakuro

Multiplication Link

Tetrochain

San-Anko

Triomino Voxas

Tumbleweed Loop