

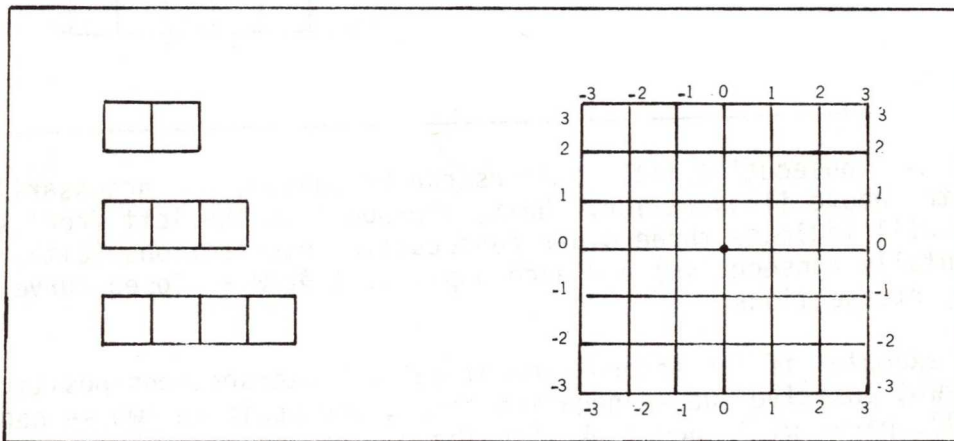
Have You Tried This?

Challenge the Teacher

by George L. Henderson

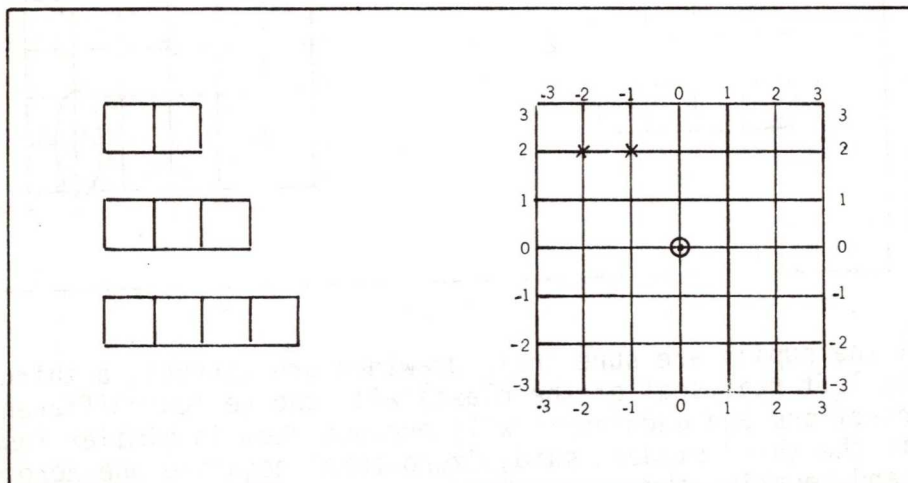
"Today is *Challenge the Teacher* day! You may compete against me; however, keep in mind that I usually win." The name of the game is "Battleship."

On a piece of paper, teacher and pupils each draw the following diagram.

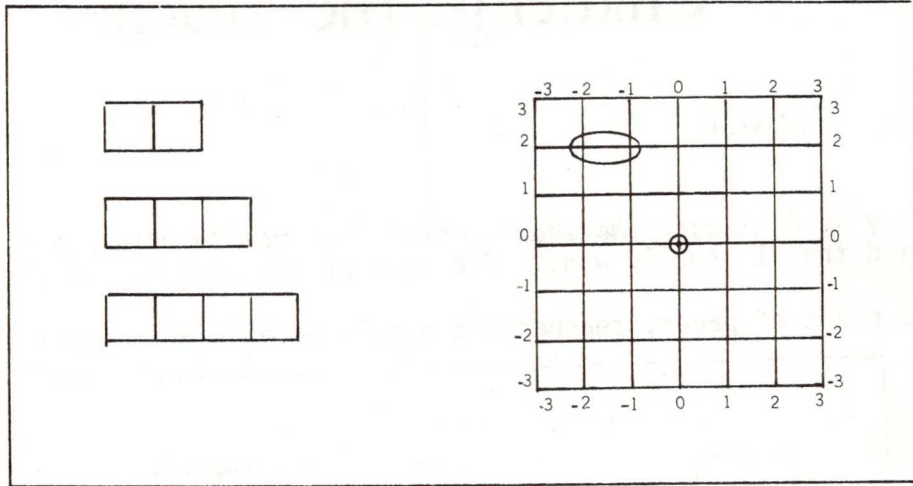


When everyone has the diagram completed, the teacher is to leave the room. Once the teacher is out of hearing, the pupil in the right front seat of the class will indicate to the other pupils TWO consecutive (either horizontally or vertically consecutive) intersections of the lattice.

For example, if the pupil says, "intersections negative two - positive two and negative one - positive two," he will be describing the intersections marked below. (Note, the first number in a pair indicates where to go, horizontally, the second number tells the vertical location of the point.)

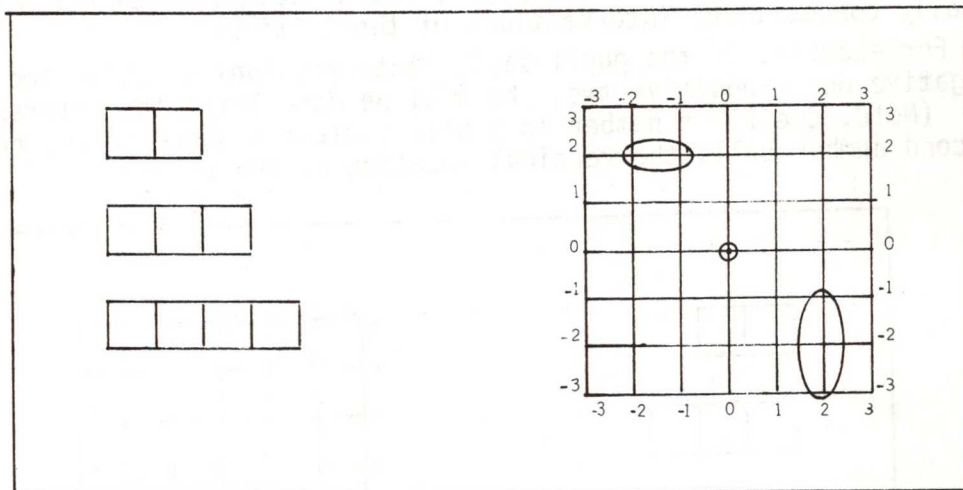


Once all class members understand which two consecutive intersections are indicated, each pupil is to draw a closed curve around the two intersections, as illustrated below.

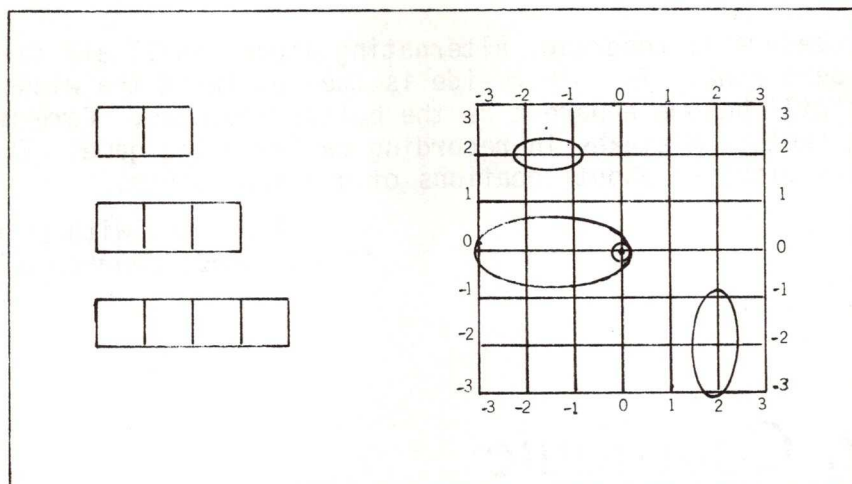


Any two consecutive intersections can be chosen, not necessarily those shown in the above illustration. Next, the pupil in the left front seat of the class will indicate three other consecutive intersections (either vertically or horizontally consecutive) and each pupil will draw a closed curve around the indicated intersections.

For example, if the second student said, "intersections positive two -- negative two, positive two -- negative three, and positive two -- negative one," each pupil's paper will then look like the diagram below.



Once all the pupils are sure their drawings are correct, a third student (the one in the left rear seat of the class) will choose four different consecutive intersections and each pupil will enclose them in similar fashion. For example, if the third student said, "zero-zero, negative one-zero, negative two-zero and negative three-zero," every student's drawing will then look like the following.



The closed curves indicate locations of the pupils' "battleships." Counting consecutive enclosed intersections serves to identify two "two-ship," "three-ship," and "four-ship." All pupils are to turn their papers face down on their desks, then one brings the teacher back into the classroom.

The teacher should already have positioned three battleships on his paper, and he should make sure that no student sees their locations when he returns to the classroom.

The teacher then takes his seat in front of the class, placing his paper so he can see it and write on it but so no pupil can see it. Students turn their papers so they can see them and write on them without the teacher seeing them. Shields can be erected, using books or pads of paper. Preparations for the "battle" now are complete. Play goes as follows.

The pupils collectively make up one side and the teacher is the opponent. When "shots" are made, they are recorded on all papers.

The teacher gets "first salvo." He has one shot for each of his floating ships. During the course of the game, if one of his ships is "sunk," he no longer gets a shot for it as part of his salvo. A ship is sunk when all intersections in it have been hit.

The teacher shoots by calling aloud the relation-pairs of numbers indicating the intersections he wishes to "blast."

After the teacher has called his opening three shots, the pupils must admit whether or not he "hit" any of their ships, indicating which ship and how many hits it sustained, but not saying which of the teacher's shots did the damage.

For example, the students may say, "you hit our three-ship once." Then the teacher can mark one hit in the three-ship drawn beside his lattice. This serves as a round of his hits.

Note: all players mark all hits by writing symbols on the intersections blasted.

Next, the students shoot a salvo, taking turns, in order, around the class shooting single shots. In other words, three pupils each get one shot.

This procedure is repeated, alternating sides, until all three ships on one side have been sunk. The other side is then declared the winner. Shooting strategies will become apparent as the battle advances. Care must be taken when recording shots. Mistakes in recording can ruin the game. The teacher has final say in disputes about locations of previous shots.

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You Can Contribute To Future NCTM Yearbooks

The NCTM is using a new approach in the development of yearbooks, the rationale for which was presented in the 1974 November issues of the *Arithmetic Teacher* and the *Mathematics Teacher*. The major portion of each yearbook will be composed of essays organized around a theme, with the treatment being neither definitive nor exhaustive. Nonthematic essays deserving widespread distribution to Council members will also be included.

The theme for the second of these new-look NCTM yearbooks will be alternative patterns in organizing for instruction in mathematics for grades K-12. It will include a presentation of instructional possibilities as well as their particular classroom applicability and implications. This will be another yearbook that every council member will want to read and will be able to use as a valuable resource.

The editor for the Alternatives in Organizing for Mathematics Instruction Yearbook, scheduled for publication in 1977, will be F. Joe Crosswhite, Ohio State University. Council members are encouraged to contribute original essays on this topic or on other topics of general interest to mathematics teachers. Guidelines for writers are available from the NCTM Yearbook General Editor, Robert E. Reys, 209 Laboratory School, University of Missouri-Columbia, Columbia, Missouri 65201.

Think Denver

The opening address to the annual meeting of the National Council of Teachers of Mathematics, April 23, 1975 in Denver, will be given by Eric McPherson, University of Manitoba, Winnipeg. The convention is planning 200 section meetings, classified as elementary, junior high, secondary, two-year college, general interest, teacher education, and research in mathematics education. Approximately 115 workshops, including computer workshops, are also planned. A program will be mailed to NCTM members about the middle of February. Non-members may obtain one by writing to the National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Virginia 22091.