

Weapons of Mass Creation

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Math Wars

Math wars is about two groups who want a different way of teaching math to students. On one side you have the Traditionalist, and on the other we have Reformers.

Traditional approach

- Teacher-led lectures
- Students passively take notes

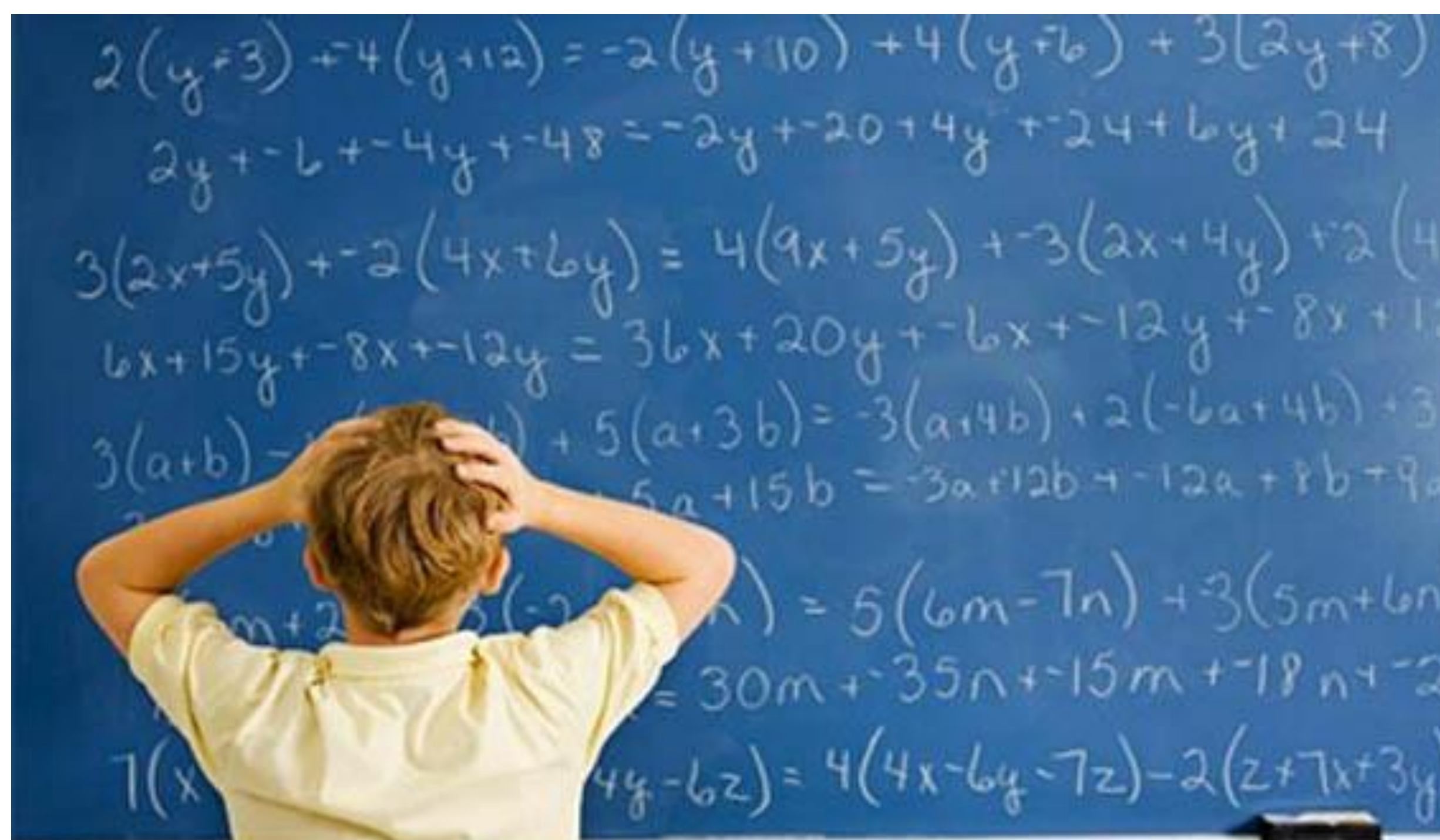
Reform approach

- Student centered
- Student led goals

In most states like California the state board makes all the decisions involving,

- school curriculum standards
- frameworks
- adoptions of instructional materials

Math wars is important because its outcome determines if we can use effective classroom approaches, and throw away the idea of ability tracking. effective classroom approaches give the students more freedom to work with their own thoughts and ideas in the classroom.



Mixed-Attainment Grouping

Ability Tracking is when students are placed into the same class based on their abilities from assessments, different from mixed-attainment, which is a mix of students from all ranges of skill that are placed in a class. A study was done, and out of the 85 students 54 percent have positive views, 28 percent have negative views, and 18 percent have a mixed view

- Advantages from mixed-attainment classes are related to cooperation, friendships, social mixing, and equality of learning opportunities.
- Disadvantages are some students can feel left out and there can be behavioral problems in class.

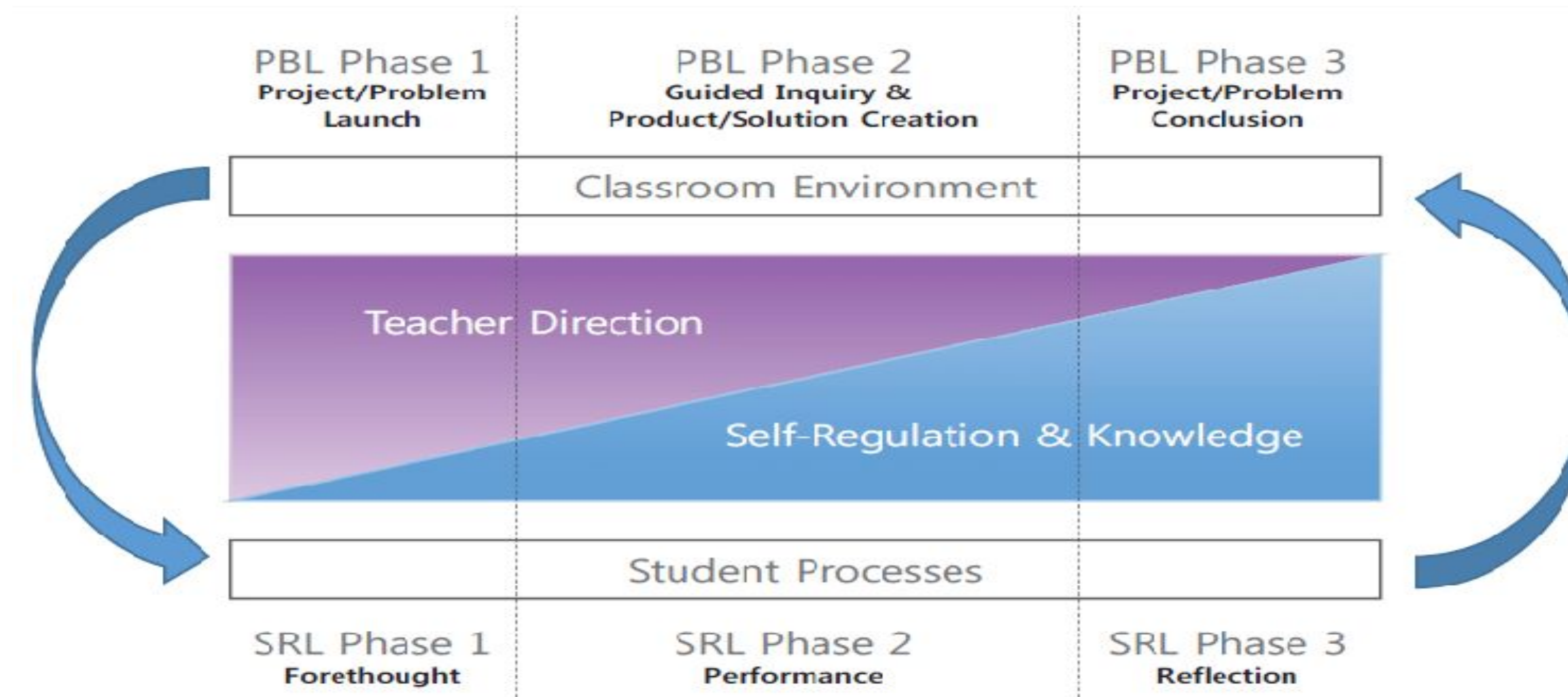
Project-Based Learning (PBL)

Project-based learning (PBL) focuses learning around projects.

- projects are complex tasks, based on challenging questions or problems
- Involves problem-solving, decision making, or investigative activities
- allows for self-awareness of learning and knowing while being context dependent

Student-Regulated Learning(SRL)

Studies are also looking into student self-regulating learning(SRL) being integrated with PBL. It is no different to PBL and its applications, but the teacher's primary role in PBL is to structure activities to stimulate motivation and encourage reflection, and to facilitate learning through scaffolding, feedback, guidance, and prompts for thinking



PBL Example



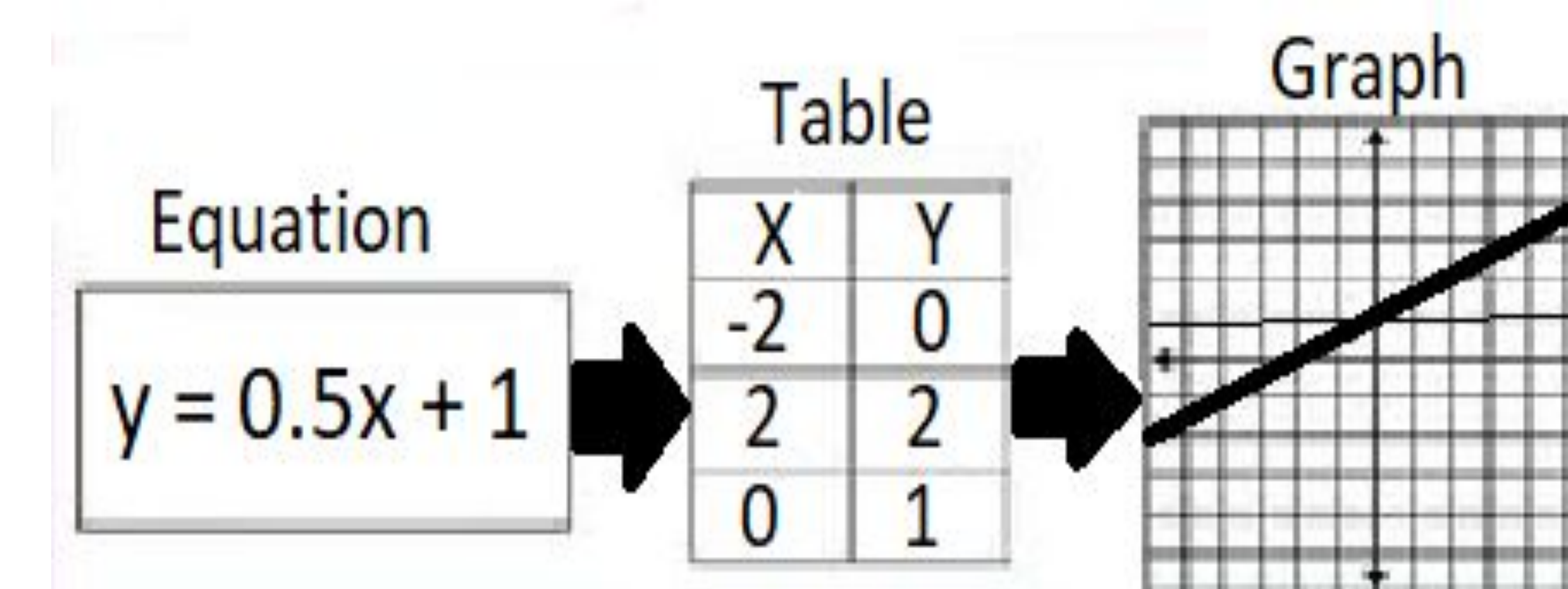
The community wants to make a garden with a variety of fruits and vegetables. Given a set amount of space(area), with different plants that require different amounts of space(2x2, 3x3, or 1x2), we want to know how many fruits and vegetables we could plant to provide all fruits and vegetables.

What can we do?

With the given area, say 32ft^2 and we have strawberries, at 2ft^2 , corn, at 4ft^2 , and carrots, at 1.5ft^2 . A resident wants at least 6 strawberry, 4 corn, and 5 carrot seeds planted. What are some ways to satisfy the residents produce needs? We give the students time on their own or in groups to find ways they can solve this, then based in their knowledge we can go over it or introduce the topic needed to solve the problem. As they are enjoying themselves and learning to communicate with each other through their findings and make diagrams, graphs, or equations to independently find a possible answer, we can observe and help where needed while make notes on their process.

Communicative Approach

The communicative approach is described as "the different ways that mathematics could be communicated through words, diagrams, tables, symbols, objects, and graphs". For example we have three ways we can represent an equation for any given math problem relating to functions.



References

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