How to Manage Science Groups

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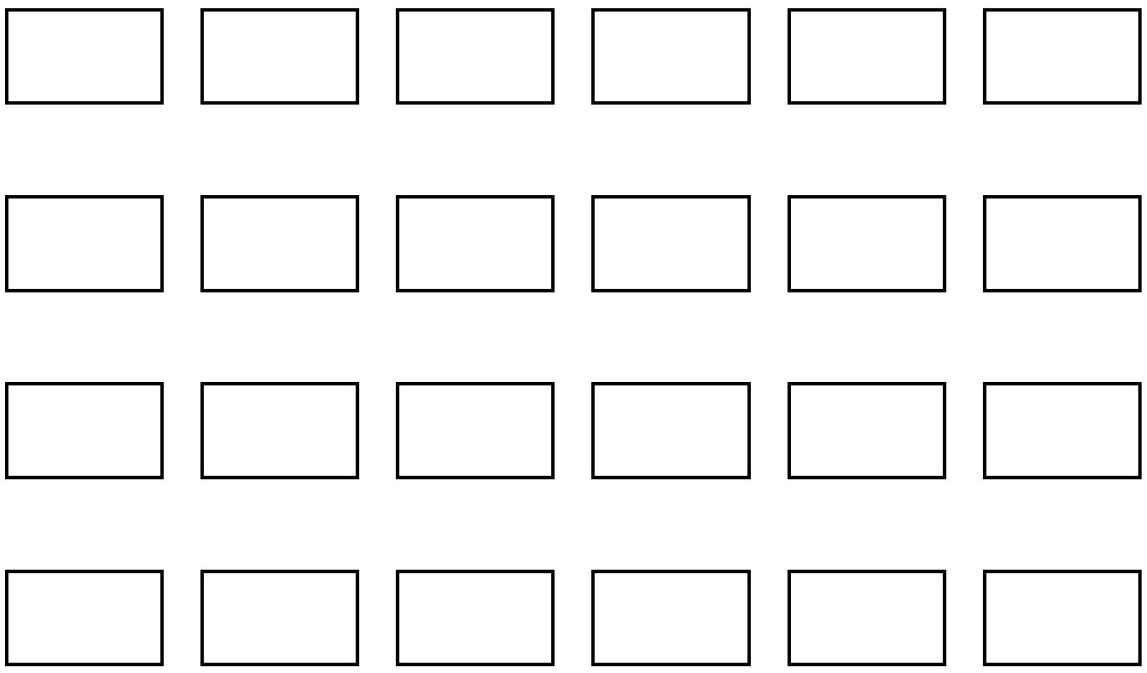
Manage Space

Turn Your Elementary Classroom into a Science Lab

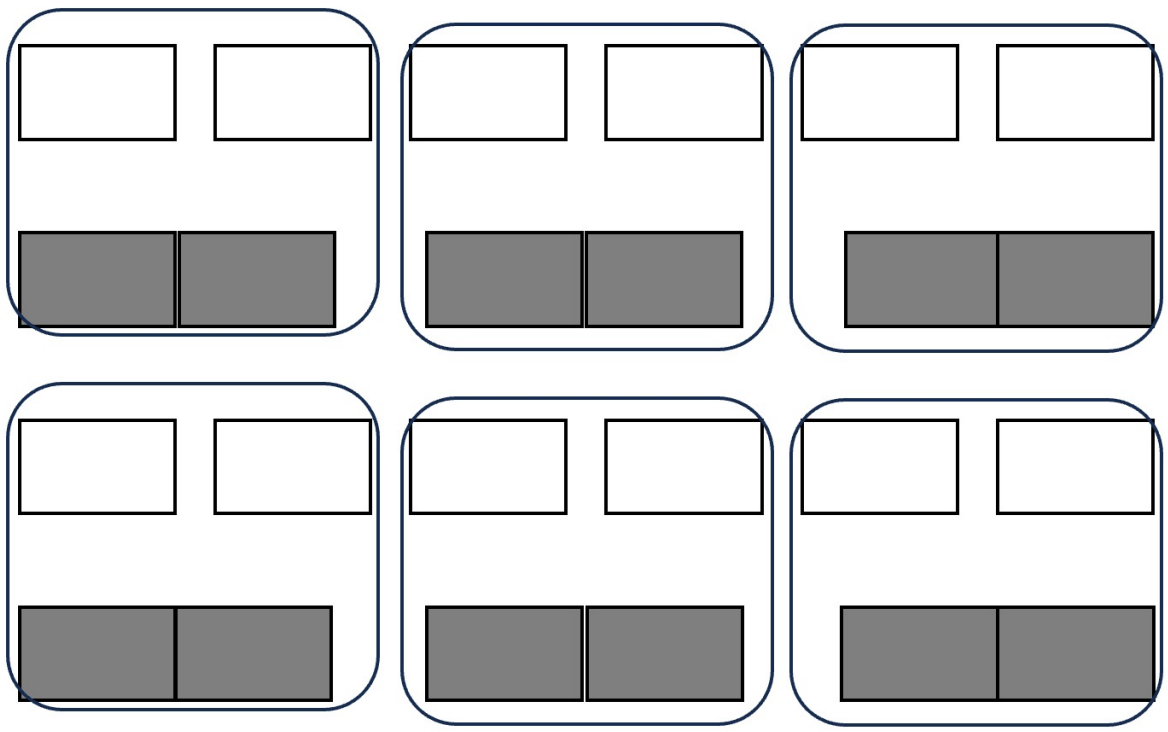
A room with tables lends itself to working in science groups.

But what if you have desks? The conversion is easier than you think.

First, plan your seating chart with science labs in mind. Groups of four work well. Therefore, arrange your desks with an even number of desks horizontally and vertically.



In this simple example, a wide classroom holds 24 student desks. The teacher prefers the desks to be separated. With an arrangement six wide by four deep, she has an even number of desks horizontally and vertically.



To prepare for a lab, students in the second and fourth rows push their desks into pairs. Students in the first and third rows simply turn their chairs around. This process takes only seconds and requires little movement. Each group now has a two-desk lab table.

Even better, if kids already sit in pairs, kids in the first set of desks simply need to turn around. This configuration is also great for think-pair-share in any subject.

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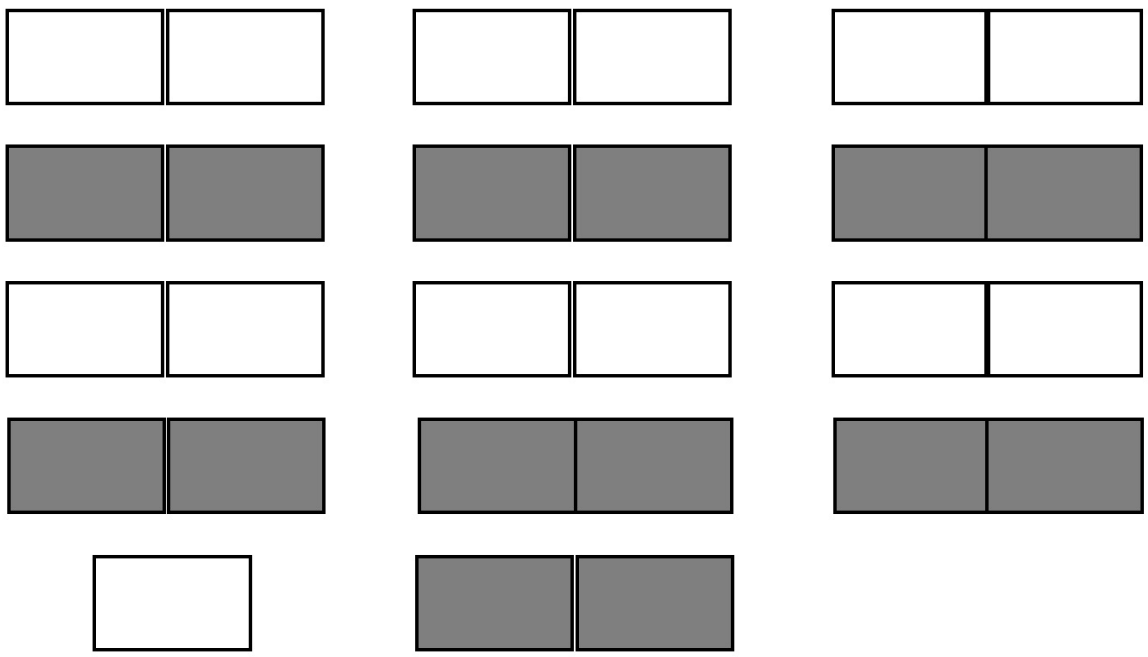
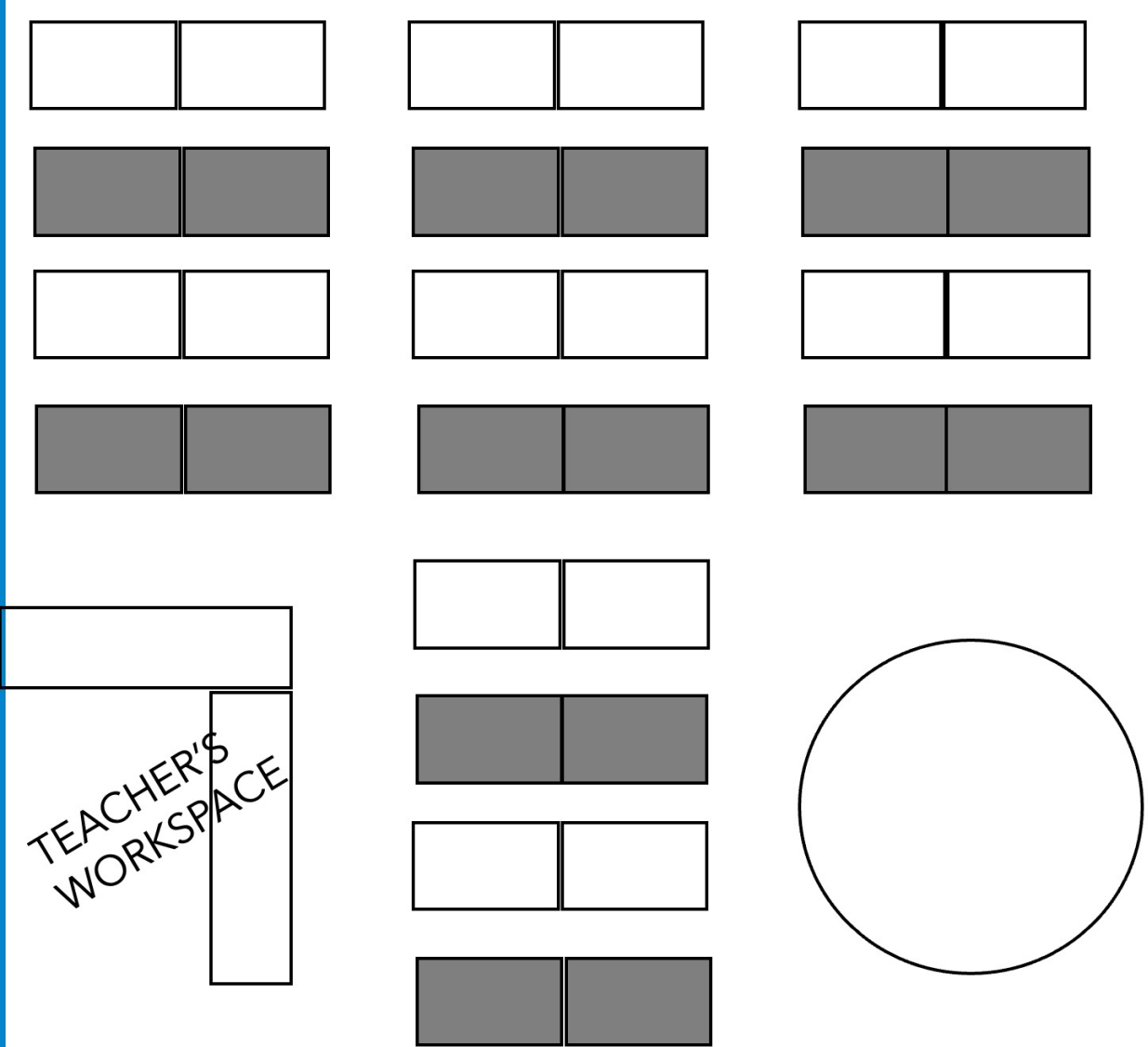
Let's look at a few more examples if your students have desks.



In this classroom with 27 desks, the teacher places one pair and one single desk in the last row. The student in the single desk simply pulls their chair to the side of the pair to join their lab group.

As you consider how to accommodate desks in this fashion, consider moving other furniture in your room. For example, if you have extra tables on the side(s) or your room, think about moving them to the back. The same goes for your desk. Move it to make your new configuration work.



Get creative!

Your desks don't need to form a rectangle.

Manage Space & Materials

Stations and Centers

Any classroom can be adjusted for stations or centers. They may be placed on countertops, tables, computer tables, low filing cabinets, the teacher's desk, or even students' desks.

To prepare, simply clear the space and make sure that the stations aren't too close together.

Science Materials

If your materials are stored in big bins that came directly from a science textbook company, rearrange them. Place items used often (e.g., tools for measuring and plastic cups) in easy-to-locate (and grab) places. Organize everything you use for a specific teaching sequence (e.g., electricity) in one place. Don't be afraid to mix new science materials with old.

Scavenge. Go to the storage room or basement. Look for containers (and maybe even furniture) that will help you get organized. Take tools for measurement, materials for specific labs, and stuff you need all the time (like baggies, aluminum foil, and cups of various sizes).

Ask. Email your colleagues and ask if they have extra of what you need. Email a middle or high school teacher to see if they're holding onto old equipment that you need. (This is a great way to get microscopes and better balance scales, for example.) Contact parents. Find out if a waste management facility near you offers recycled materials you may need.

To prepare for more science labs in your class, be resourceful and get organized.

Manage Labs

Gather Materials and Equipment Ahead of Time

Plan labs first thing in the morning, after a special, or after lunch. That way, you'll have time to get everything out.

This may seem unnecessary. This step, however, sets the stage for a smooth lab experience.

Make sure you have the right number/amount of each thing for your lab groups. For example, if you have six groups, you'll need six graduated cylinders.

Give Thorough Directions Ahead of Time

Before anyone does anything, go over all the directions, as well as who will do what. Establish clear expectations.

Give Everyone Specific Set of Duties

Use numbers to divvy up responsibilities. After the groups are at their tables, point to each seat at one table and say:

- The person in this seat at each table is number one.
- The person in this seat is number two.
- Whoever's in this seat is number three.
- And this person is number four.

Explain what will happen if there are three or five members of the group that day.

Then repeat and/or ask them to raise their hands as you call out the numbers.

Once everyone knows their number, tell them who will pick up what equipment and/or materials (as well as who will clean up what.)

Manage Labs

Mandate Taking Turns

Let's face it, when it's time for a science lab, every kid in the group wants to get their hands on the materials. Unfortunately, the most assertive students tend to take over. For this reason, also explain which number will handle each part of the lab sheet.

Hold Kids Individually Accountable

Ask each student to complete a separate lab sheet. They may compare responses and help one another, but each person is responsible for his/her own grade.

If your students have trouble working in groups, it's okay to award (or withhold) a few points for collaboration.

Don't Micromanage

Once the lab is up and running, circulate and discuss. Nevertheless, you must resist the urge to help (unless it's needed). To accomplish your goal of independent group work, you need to stand back and let them do it.

Stop Everything and Redirect

Sometimes chaos will break out. It's inevitable, especially when kids are just learning to work in science groups. At that point, calmly ask them to stop everything. (And, since chaos already reigns, you may need to turn off the lights, clap, or whistle to get their attention.)

Once everyone is quiet and calm, redirect. You may need to explain expectations and/or repeat directions before they begin again.

Feature Exemplars

Did one group figure out a great way to share responsibilities or use equipment? Stop and share what they're doing. Modeling provides a great opportunity for growth.

Manage Students

The Chief

This student takes over and won't let others do anything. When you see this in action (or if someone in the group complains), simply ask the child to write down their roles. Then tell them to stick to that list.

If the behavior persists, you may ask them to work only as an observer. Also, in this case, you may want to tie a small part of the lab grade to positive collaboration.

The Complainer

This student complains that others won't let them do anything. First, find out if the student has a valid case. After all, some students want to do everything and feel slighted when they only get to do their assigned part.

If they have a valid point, have the other group members acknowledge what that child should be doing. Observe the group to make sure it happens.

If the child is simply complaining, have them create a checklist with their roles.

The Student with Issues

Have contingency plans for kids who have trouble working in groups.

If a student melts down during a lab, you may:

- allow them to leave the group briefly to calm down
- assign a separate activity (such as related book work)
- ask them to finish the lab at home

Surprisingly, students who have trouble with group work may work better together.

If a student has a special education plan, use caution when tying their grade to collaboration. Confer with your administration to verify what's allowed.

How to Manage Science Groups

1. Manage space effectively.
2. Assign roles.
3. Mandate taking turns.
4. Expect and get independent group work.
5. Plan for difficult students.