

Tips for the Traveling

Ways to effectively teach science while moving from room to room

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Our district opened a new junior high school with five ninth-grade Earth and space science teachers and only four classrooms. With not enough classrooms to go around, one teacher had to “travel,” using rooms that became available during other teachers’ prep periods. As a first-year teacher, I was fortunate to have my own room. But when the traveling teacher left to take a position with a different district, I stepped up and volunteered to be the new traveler. At the time, teachers throughout the school questioned my decision and wondered why anyone would volunteer to travel. But someone had to volunteer and, in the end, I am glad it was me.

Although this situation is not ideal for science teachers, being the traveling teacher does have some benefits. I get to move throughout the school and interact with teachers I might not see otherwise. I learn about other teachers’ resources and ideas, which I might never have known about if I were not in their rooms. More importantly, I have improved my organizational skills and focused my teaching methods so students often do not even know I travel.

Looking back over the course of a year, I learned the following tips, which helped me travel well and, at the same time, effectively teach science.

Safety first, safety always

Luckily, all of the classrooms I travel to are regular science rooms. That is not always the case for some teachers, though, who have to travel to classrooms not equipped for science. In both cases, it is important that your class-

room is safe and appropriate for the activities you will be doing. Are chemical splash goggles and eyewash and shower stations available? Is there a functioning goggle sanitizer in the room? Is fire suppression equipment present (e.g., an ABC-type fire extinguisher)? Make sure that desks are suitable for activities that might involve heavy rocks, candles, or glass beakers. Also, have a key to the room and know where to locate

emergency shut-off switches. We once had an emergency drill because there was an intruder in the school, and I was unable to lock the door as required by district policy. You better believe I now have a key to every room in which I teach!

Do whatever you need to do to make sure your administration provides a safe environment for you and your students. Despite your best intentions, sometimes you will be forced to teach in a regular-education classroom. Roy (2007a) addresses many of the issues science teachers face when placed in a classroom not designed for science laboratories. Ultimately, the traveling teacher must deal with two nonlab scenarios: teaching in a nonlab science classroom and teaching in classrooms used by other content teachers. If you are traveling to a science classroom that does not have lab facilities, you are at least in the good company of the teacher who “owns” that classroom. Here it is fair to expect and demand basic safety equipment such as chemical splash goggles and fire extinguishers. If goggles are required because of hazardous chemical use, the room must also have engineering controls (e.g., eyewash and shower stations). If, however, you are traveling to a room that is used by other departments, you will need to make sure you have basic safety equipment with you. Avoid activities that require engineering controls such as eyewash stations, master electrical shut-offs, sinks, and running water—unless they are available in the room you are using. You may wish to consider the following to help prepare for or mitigate these situations:

- ♦ Agree as a department that some science subjects need the lab setting more than others. For example, it is sometimes easier to teach Earth science in a classroom not equipped for science than biology or chemistry.
- ♦ Find a way to keep lab activities in the lab. Try convincing your administration and fellow teachers that you need lab time; use safety con-

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cerns and liability issues to make your argument more compelling. Arrange a schedule in which you can switch rooms one or two days a week to provide your students with the lab experience they deserve and require. If you are willing to travel, someone else should be willing to swap rooms once in a while.

- ◆ Make the shift from “activitymania” to inquiry. Moscovici and Nelson (1998) describe activitymania as the use of hands-on activities without any thought about how they relate to one another or to the big picture. Plan some lessons around data analysis instead of data collection. Provide students with a lab report and have them analyze whether the experimental method is appropriate or have them analyze the data and write the analysis and conclusions sections of the report. Finally, do not forget to take advantage of computer simulations, virtual field trips, and internet-published data.
- ◆ Arrange to use a classroom that is near bathrooms so you have a water source and sink for cleanup.
- ◆ Go outside to take advantage of the “outdoor classroom” concept for ecological studies, geology investigations, and meteorological data collection. Roy (2007b) provides excellent guidance for safety outside.
- ◆ When you absolutely need to transport science equipment from room to room, minimize the hazard. Arrange to drop off materials before school or during your prep so you are not moving expensive or breakable equipment and potentially hazardous materials when students are in the hallway. Use plastic beakers and cylinders when possible. Ask the room’s teacher for a secured or lockable cabinet where you can safely store certain equipment you use on a regular basis.

Ultimately, if you find yourself being asked to teach science in a space that is either unsafe or does not support active learning, you must advocate for a better, safer room. While some simple activities are safe to use in a general classroom, other activities require full-blown laboratory safety equipment (Roy 2007a). Such activities should never be attempted in an improperly equipped room.

Respect the room

In addition to taking safety precautions, it is also important to remember that you are a guest in someone else’s classroom. You have the right to use that room and the equipment owned by the district, but the other teacher will ultimately be responsible for broken faucets, desks that have been drawn on, and similar problems. Custodians will complain about the other teacher, not you, when they have to scrape gum off of the chairs. To avoid problems, I always carry a container of bleach wipes and a small dust pan and brush with me. My students know that whatever activity we do, whether it involves markers or sand, acid or algae, the room needs to be cleaned up before we leave.

The same advice goes for student work displayed in the room. If my students did not do the work, my students do not touch the work. I have found that when a student does misuse the classroom, a phone call home or an apology letter to the room’s teacher, signed by the student and parent, is sufficient to prevent this behavior from recurring.

Ask for what you need

Although it is not your room, you do have to use it, so do not be afraid to ask for things you need. For example, cabinet space for textbooks or student work in progress is always helpful. Space in the classroom or office for your books, files, and material is a necessity. Be sure to ask your

administrator for materials to make your job easier as well. Some items you should consider requesting include:

- ◆ Your own high-quality, solid cart with a locking cabinet (Figure 1). The typical overhead cart with no sides will not work well. You can keep supplies such as the bleach wipes and small dust pan I mentioned earlier on this cart. Other items on my cart include a plastic bin I use as an inbox and outbox, a box of supplies (e.g., a stapler, masking tape, paper clips, sticky notes, pens, and pencils), and a bin that contains all the paperwork I will need for that day. Any unusual materials I need for that day's activities also go on the cart. (**Editor's note:** See Hodges [2001] for more information on mobile carts.)
- ◆ A laptop and LCD projector will help prevent conflict between you and the other teacher, since you both will need board space.
- ◆ A digital microscope might work well in a regular classroom where 20 student scopes and their cords would be impractical and unsafe.

You might also ask to teach only one course. My school works on a block schedule, so I teach three classes each day and have one prep. I find that the semester I teach only Earth and space science classes is a lot easier and more organized than when I teach two sections of Earth and space science and one of biology. It is much harder to carry supplies around for two classes than for one.

Most administrators are sensitive to the fact that your job can be harder than either a traveling English teacher or a science teacher with a permanent room assignment. Supplying you with appropriate equipment is a reasonable request and is relatively inexpensive compared to refitting a regular classroom as a science room.

Know when to cut your losses

Even with appropriate tools and supplies, there are just some things you cannot do when you are a traveling teacher. I personally do not assign seats because the teachers in my building move lab benches and desks around—arrangement can change from pods to rows to a circle around the room. Have you ever seen 20 students walk into a room and not know where to sit? It is like the first day of school all over again. So I let students sit wherever they want and deal with behavior problems as they occur by simply moving the students involved.

Compacted curriculums, introduced by Reis and Renzulli (1992), which allow students to test out of regular instruction and investigate the topic through enriched learning, are difficult because of the amount of material I need to move from room to room on a daily basis. Open-ended inquiry is also challenging because I am not sure what students will need and whether I will have the resources in that particular room. However, inquiry is so important

that I find ways to make it work. To be successful with open-inquiry investigations, I try to predict what students will use, or I space the project out over a longer period of time. For example, I might ask students how weather affects the sport of tennis. Students usually request tennis balls, metersticks, tools for measuring weather conditions, and a way of heating and cooling tennis balls, which I am then able to provide in the next class period.

I have also tried making Fridays research days, allowing students the opportunity to design and carry out their own investigations. Students think about what they want to investigate and plan their investigations on one Friday. The product at the end of this class is a materials list for the investigation. I then make sure I have all the materials available for the next Friday, so students can carry out their investigations.

Labs that require an hour of set-up time are obviously not going to work easily for a traveling teacher. However, traveling has actually made me a better teacher because I now focus on how to teach the same material through simplified labs. An example of a simplified lab involves giving my students two rocks that come from the same location: one that is sandstone and has been weathered smooth, and the other that is a piece of fractured red shale with sharp edges. Students must work together to figure out how rocks from the same location can look so different. In my part of the country there are a number of possible scenarios that could explain this phenomenon, and these particular rocks are glacial till and fractured rock excavated from below the soil. Both were found at the same location, but because the shale was underground, it was not subjected to weathering. This simple, inquiry-based activity can last anywhere from a few minutes to a whole class period, and all I need is a bucket of rocks.

The last major limitation I have found is wall space. Without a room, I do not have space to hang student projects. Therefore, I purchase a scrapbook for each class and attach select samples of work (e.g., writing assignments or lab reports) or photographs of activities and larger projects such as posters. Throughout the semester, I circulate the book around the room and give students the opportunity to reminisce and reflect on what they have accomplished in class.

Choose wisely

At the end of the day, your effectiveness as a teacher is a result of how you choose to deliver your content. This is true whether you have a room or are a traveling teacher. In my experience, certain instructional methods work better than others.

Believe it or not, designing a unit based on the learning cycle model works well for the traveling teacher. Often called the 5-E Teaching Model (Bybee 1989), the learning cycle is a constructivist model for conceptual learning. Engaging and exploring activities usually require me to carry

FIGURE 1

Example of a cart made for traveling.

PHOTO COURTESY OF THE AUTHOR

lots of materials and supplies. In contrast, on days when I am explaining concepts in more depth, I might only need the projector and computer for a slide presentation. Using the learning cycle ensures that I have days when I do not feel like a pack mule. It also keeps me from falling into the habit of focusing on just notes or bookwork because it is easier to move from room to room.

There is a place for paper or computer labs. Sure, it is nice for each student to actually see and work with the real tree rings when studying climate, but I can just as easily have one real tree cross section and do a paper lab to reinforce the concepts discussed.

Do not be afraid to leave the classroom. I use the hallway for timelines. I use the gym. I go outside as much as possible. Our curriculum calls for a model of the solar system using 5 m strips of calculator tape. Teachers typically hang the models on the walls; because I do not have walls to call my own, we go outside and use sidewalk chalk to draw the models in the parking lot. Necessity has made me a more resourceful teacher by forcing me to get my students outside and moving around.

End each day with a specific closure activity. I have my students convinced that an essay a day will keep the principal

away. We end each 90-minute class with a 10-minute writing assignment. This is a good way to create an organized transition from one class to the next, and these assignments serve as my daily formative assessment and closure. I might ask students to write a poem about the rock cycle, a letter to a famous scientist about the science skills they used that day, or an essay explaining an important concept to an elementary school student. None of the assignments are long; I can read a class set of essays in a few minutes. More importantly, it gives me 10 minutes at the end of class to deal with paperwork and pack up my cart for the walk to my next class while still engaging students in meaningful learning.

Effectively teach science

While the ideal situation is for all science to be taught in a properly-equipped classroom, where materials do not have to be transported from room to room, the unfortunate reality is that some teachers do have to travel. As a traveling teacher, my administration supports everything I do to make traveling an enriching and safe experience for students. Students make my life easier by respecting the rooms we use for classes. My fellow teachers have been helpful by going out of their way to give me the space and resources I need to be an effective teacher. Also, I have enjoyed the challenge of finding and designing lessons and activities that can be implemented by the traveling teacher and still actively engage students in the scientific process.

Be assured, you too can effectively teach as a traveling teacher. You just need to remember to stay safe, show respect to the other teachers, ask for help and support, and find ways to engage your students in science. Because, after all, that is why we are here—to help students safely learn science. ■

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