

## A Practical Guide for the Beginning SCIENCE TEACHER

Linda Froschauer and Mary L. Bigelow





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# RISE AND SHINE

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## CONTENTS

#### IX INTRODUCTION

#### 1 CHAPTER 1: OFF TO A GOOD START

- 2 ..... Your Role as a Teacher
- 3 ..... Your Role as a Team Member
- 3 ..... Your Role in the Learning Community
- 4 .....I Chose Science Teaching Because ...
- 4 ..... Your Teaching Philosophy

#### 7 CHAPTER 2: BEFORE YOU OPEN THE CLASSROOM OR LAB DOOR FOR STUDENTS

- 9 ..... Meet the People Who Are Important to You in Doing Your Job
- 9 ..... Know the Curriculum
- 10 ..... Explore Your Environment
- 11 . . . . . Know Your Technology
- 11 ..... Read Your Teacher Handbook
- 13.....Study Your Schedule and Class List
- 14.....Examine Your Inventory of Materials and Equipment
- 15..... Make "Safety First" Your Motto
- 15.....Create a Positive and Inviting Classroom Environment for Learning
- 16.....Consider the Classroom or Lab Arrangement
- 17.....Be Prepared

#### 19 CHAPTER 3: THE FIRST WEEK OF SCHOOL

- 21..... First Day Fears
- 21..... The First Day Celebration
- 23 ..... First Week Orientation
- 23 ..... Getting Organized
- 24 ..... Getting to Know Your Students
- 25 ..... Motivating Students
- 26 . . . . Time Management
- 26 ..... Your Professional Appearance
- 27 .... Lesson Planning

### 31 CHAPTER 4: CREATING AN ENVIRONMENT FOR LEARNING

- 33 ..... Classroom Management
- 37 ..... Classroom Organization
- 39 ..... Classroom Climate

#### 47 CHAPTER 5: SAFETY IN THE LABORATORY

- 49 . . . . The Role of the Science Teacher in Safety
- 50 . . . . Your Classroom or Lab
- 52 ..... Safety Contracts and Student Orientation
- 53 ..... Lab Equipment and Supplies
- 55 ..... Lab Activities
- 57 .... Challenging Circumstances

#### 61 CHAPTER 6: YOUR ATTITUDE MATTERS

- 62 ..... Qualities of an Effective Teacher
- 64 ..... Some Other Qualities to Keep in Mind
- 65 ..... Self-Care: Your Physical and Mental Health
- 69 ..... Passion for Your Subject and Your Students

#### 71 CHAPTER 7: TEACHING STRATEGIES

- 73 ..... Motivating Your Class
- 75 .....Modeling
- 75 ..... Overcoming Misconceptions
- 76 .....Inclusion
- 78 ..... Differentiation
- 81..... The Essentials in Developing Lessons
- 84 . . . . Science Reading and Writing
- 86 . . . . Science Notebooks
- 88 . . . . Boosting Science Vocabulary
- 89 . . . . Science Projects
- 90.....Cooperative Learning Groups
- 93 ..... Answering "Why Do We Have to Learn This?"
- 94 ..... Teaching Study Strategies
- 95 ..... Field Trips
- 95 . . . . The Use of Technology
- 96 ..... Class Starters and Wrap-Ups
- 97 ..... Preparing for a Substitute
- 98 . . . . Homework

#### 105 CHAPTER 8: ASSESSMENT LITERACY

- 107.....Purpose of Assessments
- 107....Preassessments
- 108 . . . . Formative Assessments
- 110....Summative Assessments
- 112 . . . . Rubrics
- 113 . . . . Providing Informative Feedback
- 115 ..... Meeting Expectations
- 116 . . . . Student Self-Assessment
- 117 .... Indicating Level of Success

#### 121 CHAPTER 9: CREATING PROFESSIONAL DEVELOPMENT OPPORTUNITIES

- 123.... Developing a Plan
- 124....Book Groups
- 124....Professional Associations
- 125....Conference Participation
- 126.... Professional Learning Communities
- 128....Using Community Resources
- 128....E-Learning
- 130 .... Professional Networking

#### 133 CHAPTER 10: PARENTS AS PARTNERS

- 135....Contacting Parents
- 136....Conferences
- 138....Back-to-School Night
- 141.....Comments on Report Cards
- 142.... Dealing With Political and Volatile Agendas
- 143....Parent Resources

#### 145 CHAPTER 11: FINDING SUPPORT

- 146....Mentors
- 148.....Know Your Team and Department
- 149....Administrators

#### 153 CHAPTER 12: PREPARING FOR YOUR EVALUATION

- 155....Being Observed
- 156.... Walk-Throughs
- 156....Formal Observations
- 159....Reflection and Self-Evaluation
- 160 . . . . Final Evaluation
- 160 .... Documentation

### 163 CHAPTER 13: END-OF-YEAR ACTIVITIES AND REFLECTIONS

- 165....End-of-Year Learning Activities
- 166. . . . . The Year in Review
- 168....Inventories
- 169....Professional Activities

#### 171 EPILOGUE

175 **REFERENCES** 

#### 179 **ABOUT THE AUTHORS**

181 **INDEX** 

## INTRODUCTION

**THINK BACK TO** your first day of school in kindergarten or first grade and how nervous (and excited) you were. That's how nervous (and excited) you'll be on your first day as a science teacher! Even veteran teachers get a few butterflies on the first day when the door opens and the students come into the classroom or lab for the first time.

When you were student teaching or doing your practicum, you walked into a situation that was already set up for you. The classroom or lab was organized, the supplies were inventoried and stored, the safety routines were in place, and the students were accustomed to your cooperating teacher's style. But now you're on your own. It may sound like a paradox, but even though teachers are in a building full of people, teaching can be a lonely profession. It doesn't have to be, but new teachers may feel overwhelmed and hesitant to ask for suggestions or support.

We don't want you to leave this wonderful profession due to a lack of support. Statistics show that half of those who enter teaching leave within the first five years. That is simply unacceptable. We need high-quality teachers to support student learning. We know that the longer you stay in the profession, the more you'll add to and refine your teaching skills. This book was created to address the needs of teachers who are entering the science teaching profession. This includes those who have recently completed their undergraduate studies as well as those who are assigned to teaching a different subject or grade level for the first time. This book can also be helpful to those who are supporting new teachers as mentors or administrators. We invite you to join us at Community School (CS), a K–12 consolidated school. The heartbeat of CS is in the teachers' lounge. This is where people gather in the morning to grab a cup of coffee and check their mailboxes. It is also where the staff gathers for short breaks, planning periods, and lunch. There always seems to be food available for anyone who wants a quick snack as well as the company of others who are interested in sharing a conversation. Everyone in the building joins in the varied conversations that take place at some point during the day. CS is a large school with many seasoned teachers, as well as several who are new to the school.

As you read the book, you will meet several of the administrators and other science teachers as they provide suggestions and personal comments. We would like for you to meet our new science teachers:

Alberto has been teaching high school biology for two years but is switching to middle school environmental science—new content and a new grade level. "I'm a little nervous about working with younger students. I think I'll need some additional teaching strategies and assessment ideas, but I think my sense of humor will help."

Heather has been a substitute teacher for a year and was recently hired as a full-time elementary science specialist. She will meet with all of the fourth and fifth graders. "This sounds like a dream job! But I'm wondering about how to manage working with all of these students and two different grade levels in the same lab—and the paperwork."

Jason is a recent college graduate in his first teaching assignment, splitting his day between middle school physical science and high school physics classes. "I'm fine with the content, but with two different subjects and grade levels, I think I might get even crazier than I already am. I'd appreciate any ideas to help me get organized. Safety is also a big concern of mine."

Sherrie worked as an industrial chemist for 15 years and is changing careers to be a high school chemistry teacher. "I'm really excited about sharing my real-world science experiences. I can manage a lab, but I need some suggestions on classroom management. I also need suggestions on getting to know 100-plus students and communicating with parents."

Tanya is a recent college graduate beginning her first year as a high school Earth science teacher. "I did not have a lab when I did my student teaching, but at CS I do. (Yay!) I'll need advice on setting up and maintaining a lab and inventories. Like Jason, I worry about safety. I have lots of questions. I hope that I can find other teachers to help me."











The NSTA Reports column "Ms. Mentor" has been the inspiration for including Ms. Mentor as a contributor to the discussions. Ms. Mentor is a highly respected retired science teacher who volunteers to work with new teachers. The new teachers at CS have been urged to use her as a resource, and she'll respond to their questions with insights and suggestions at the beginning of each chapter.

Enter the teachers' lounge using the first three chapters of *Rise and Shine: A Practical Guide for the Beginning Science Teacher*. These chapters include suggestions for starting the first few weeks of school. The rest of the book covers safety, organization, teaching and assessment strategies, and professional development. A comprehensive discussion of these topics would take several volumes, but this book is designed to be an overview for the new teacher. Read through to the end or select chapters that meet your immediate needs and save the rest for later. We designed the book to provide you with the opportunity to start reading wherever it makes the most sense for you. We encourage you to discuss the ideas, suggestions, and strategies with a partner (in your school or through an online community) or share your insights with your mentor.

We have provided many lists of suggestions in the text. Some are ideas from which you can pick and choose, indicated by a bullet (•). Others are checklists of steps to follow as you proceed through a specific strategy, as shown by a check-off box ( $\Box$ ). You will also find frequent references to other sections of the book, as well as to additional resources at the end of each chapter and online appendixes, identified by the arrow ( $\rightarrow$ ). The resources can help you begin gathering the materials for your own professional library. We have provided most of the appendix documents in a word-processing format to allow you to personalize the materials. The online appendixes and internet resources can be accessed online at *www.nsta.org/riseandshine*. The resources will be updated periodically to reflect newly available resources.

Although we wrote the book for you as you enter your new science position, we hope you will find the information valuable throughout your career, which we hope is long and successful. We both have had moments when we looked at our students as they were enthusiastically engaged in investigations and we thought, "It doesn't get any better than this!"

Best wishes for great success and fulfillment, Linda and Mary

### CHAPTER 3 THE FIRST WEEK OF SCHOOL

Dear Ms. Mentor, Jason I'm teaching two different subjects (high school physics and middle school physical science). How can I organize and manage my lesson plans and other resources?

Dear Jason,

Creating a system for lesson planning is time-consuming at first (even for one subject), and you'll modify it as you discover what works best for you. It's worth the effort—at the end of the year, you'll have a complete record for the next time you teach the courses. It's much more efficient to revise and adapt rather than re-create the lessons.

My colleagues used to call me the binder queen of planning (I've since progressed to electronic files). Rather than storing the intact curriculum document on the shelf, I took it apart and put the unit plans in a binder (a separate binder for each course). I then inserted my lesson plans and other documents for each unit.

For lesson plans, the best thing I ever did was get rid of the spiral "Plan Book" with its 2 × 3 in. block for each class period. There wasn't enough room to record the plan for an entire lesson other than a cryptic "pp. 52-56, #1-5" or "Algae Lab," which was not much help the following year.

Find out if your school has a lesson plan template. If you're using a framework such as Understanding by Design or the BSCS 5E Instructional Model, there may be lesson templates posted on the project website. If you don't have a suggested template, create one for yourself electronically. Here are some features to include (noting that a lesson may span several class periods):

- Lesson title and dates
- Unit goals (or themes, essential questions, big ideas, standards) supported by the lesson
- Lesson objectives or goals
- · Description of the lesson's content topics and key vocabulary
- Introduction to activate prior knowledge (e.g., warm-up activity, recap
  of previous class period, an interesting anecdote or story)
- Instructional activities (discussions, lab investigations, cooperative learning activities, informal assessments, opportunities for practice or application, readings, multimedia use, homework)
- Lesson assessments and rubrics (quiz, summary, group presentation, lab report, checklists, notebook entry, observation) correlated to the objectives
- Materials needed (web resources, supplemental texts, technology, handouts, lab materials, notebooks, office supplies)
- Adaptations for students with special needs or extensions for students beyond the basic objectives

During the lesson, annotate the plan, reflecting on what went well and what did not work (and what you did to fix it). Describe any modifications you made to activities or assessments.

Use the organizational features on your computer (and save backups on a flash drive, the school server, or an online file-sharing site). Have a color-coded folder for each course and subfolders for each unit and lesson. Archive your presentations, photos, podcasts, and video clips, as well as copies of lesson plans, handouts, and assessments.

In addition to electronic files, I still like the concept of binders where I can flip through an entire unit without opening lots of files. Once a binder queen, always a binder queen!

-Ms. Mentor

**THE WAY YOU** begin the school year will affect everything that occurs in your classroom and with your colleagues for the remainder of the year—and beyond. When you were student teaching, your cooperating teacher had already set the stage for you. But now starting the school year is your responsibility. Therefore, it is important to dedicate time and energy to this important start.

#### **First Day Fears**

It's normal to feel nervous about the first day of school. Many teachers feel nervous their entire career, not just their first year. The best way to dissipate this nervousness is to be prepared (or even overprepared). Consider more tasks to accomplish the first day or two than you believe will be possible to complete. Consider the topics that are most important to cover, then add a few more.

I'm getting nervous about the first day. Is this normal? Heather

Students will have fears on the first day as well. They have no idea what to expect from you. Stand at the door as they enter your classroom and welcome them to your class. Look happy to see each of them. If you have learned any names, use names when greeting the students. Make them feel comfortable.

Try to get rested before you begin the first day. Expect to feel exhausted at the end of this day and every day for the next week or so. In this new routine, you will expend a lot of energy not only working with your students but also in preparing for them each day.

#### **The First Day Celebration**

The first day is the most important day of the school year. This is the day you will set the tone and let your students know what to anticipate for the coming year. It is also the day you begin to establish your reputation as a teacher. You cannot be overprepared.

Find out what the school's schedule and procedures are for the first day. Will there be a schoolwide assembly or an extended homeroom period? If so, how long will the class periods be?



On the first day, you should not focus on a list of rules and regulations. The day should be a celebratory occasion. You may begin your first day with the first lesson of the year, or you may find there are so many things you want to do with your students (some of which could be required by the administration) that your first lesson will take place the following day.

I have had the same dream every year for 30 years the night before the first day of school. I dream that I am in front of the class the first day in my nightgown. I know why I have this dream it's because I'm worried about being prepared for my students.

-Sharon, grade 5 teacher

Give students something to look forward to. If you are in a lab setting, create displays of interesting science equipment they will use during the year. You may not have anything accumulated yet, but in the future you will be able to display student work from previous years—the more interesting and creative, the better. Celebrate what the year in your science class will provide for your students.

- □ Introduce yourself. The students may know one another, but they don't know you. You should not take the entire time to tell the class about yourself, but you should let them know where you went to college, where you are from, what wonderful things you have heard about them, the positive things you have heard about the school, how much you enjoy learning and doing science, some interesting science-related experiences you've had, and why you selected science teaching as your career. Exhibit the passion and enthusiasm that made you want to be a science teacher.
- Assure students that they can be successful in your class. Don't insinuate that it will be easy to do well, but emphasize that with work and dedication, everyone will be successful. You may not have success stories to share yet, but be sure to include them in future years.
- □ Be confident in yourself and show students that you know what you are doing. Project your knowledge of the science content as well as how to present it. (→ See Chapter 6, "Your Attitude Matters.")
- □ Discipline will probably not be an issue the first day. Most students are on their best behavior initially; some teachers say they are sizing you up to see what they can get away with. But if there is a discipline issue, be sure to deal with it. Remember that you are setting the tone for the entire year. (→ See Chapter 4 for more on classroom climate.)
- □ Establish an atmosphere that is both serious and fun. Be sure students know there will be rules to follow but that all rules are for the purpose of providing them with a safe environment that will support their learning. There may be several rules to share this first day, such as those dictated by the school concerning tardiness to class, but this is not the day to overwhelm students with rules. Don't try to share every safety rule with them on the first day. (→ See Chapter 5, "Safety in the Laboratory.")
- Consider a quick hands-on science activity, demonstration, or discrepant event to engage the students. Use it at the end of class time to have them leaving your classroom with the feeling of anticipation for the rest of the year. Or end the class with a funny story. Have them leave your room with an upbeat feeling.

#### First Day Checklist

Be prepared with these materials:

- **D** Copy of class lists
- Bell schedule posted

- Additional notices and documents from the front office posted or ready to hand out
- □ Safety equipment in place
- □ All supplies ready
- **D** Paper and pencils for students who did not come prepared
- $\square$  Something nutritious to eat to get you through the day
- □ Comfortable, professional clothes and shoes
- Lesson plan for the day
- Enough chairs and materials for each student
- □ Your name written carefully on the board

Plan to do nothing socially tonight or the rest of the week and get lots of rest. Breathe deep, relax, and enjoy the day!

#### **First Week Orientation**

Set the stage during the first week. Provide students with a clear concept of what will occur every day in your class. They need to know they can expect specific classroom characteristics such as fairness, learning opportunities, engaging lessons, interaction with their peers, a caring teacher, support, and understanding. During the first week, you should aim to accomplish the following tasks:

- □ Introduce your website to your class, if you have one.
- □ Provide the class with a syllabus or list of major science concepts they will learn. (→ See Online Appendixes 3.1a–e for sample syllabi.)
- **D** Explain where they can find things in the room that they will need.
- Gradually introduce basic routines and rules that allow all students to learn.
- □ Explain and provide a safety contract that students will sign and return. (→ See Chapter 5, "Safety in the Laboratory.")
- □ Introduce your homework policy and what you expect from students for makeup work.
- Explain how students can contact you if they need help and inform them of your office hours or times when they can see you to discuss their work.
- □ Stress student routines that will be followed in class.
- □ Establish a climate that promotes work by individuals and groups.
   (→ See Chapter 4, "Creating an Environment for Learning.")

#### **Getting Organized**

Students will know if you are organized. It's particularly important during the first few weeks to have everything ready for students as they walk in the door. Later, you may engage some of them in setting up materials, distributing items, or collecting things from others. But initially, you need to have all papers, materials, and plans well prepared.

One of the things I promise my students on the first day is that I will do anything I can to help them in any way. The harder they work, the harder I work to help.

–Dwayne, grade 9 science teacher Consistency is key. Most students perform best with consistency in expectations, schedules, and processes used in class. This is especially true for students with learning disabilities.

–Shayna, special education teacher Many teachers find a seating chart beneficial in creating an atmosphere of organization. A seating chart can benefit students and your instruction in several ways:

- There will be no argument about who sits where.
- Students who have difficulty focusing and staying on task can be placed in a location in the room where you will have quick access to them and can provide them with on-task behavior suggestions.
- Students with special academic needs can be seated with others who are supportive and in a location you can easily access.
- It will be easy for you to take attendance simply by spotting empty seats and knowing who is missing.
- You will be able to learn student names more quickly and can remind yourself of a name if you are having difficulty.
- You will be able to give students an opportunity to work with a variety of people.
- Lab partners and teams can be selected based on student strengths and needs.
- Students will have a clear message about who is in charge of the class.
   (→ See Chapter 4 for more on classroom management.)

#### **Getting to Know Your Students**

When students are asked about the most important characteristics of a great teacher, the one item that is on nearly all lists is "The teacher knows me and cares about me."



I'm learning the names of my students but I want to really get to know them. Since I'm new to the community, I'm challenged to know their interests and activities. How can I accomplish this in a timely manner?

There are several strategies you can use to learn the names of students quickly.

- If your school has a yearbook, get a copy from the previous year and look up your students. If you don't have a large number of students, you can also look at their cumulative or online folders to see their pictures.
- Make a seating chart.
- If your students don't know one another, play a name game to start the first few classes.
- While students are working and you are helping them, look at their names on their papers or notebook covers.

• Use students' names often in class. "That's a good idea, Otis" or "What do you think of that, Stephanie?" are ways to help you anchor your learning of names and also let students know you are getting to know them.

Getting to know students really goes beyond simply learning their names. You can learn other academic information about students by reviewing their cumulative folders and IEPs. But other information may be harder to find. The time to start gathering information is the first week of school.

- Some information about individual students can be found in the yearbook, as you see them pictured in photos of teams and clubs.
- Ask students or parents to complete an information questionnaire. You could also use an index card or online tool to gather information about students' interests and previous experiences. See the online resources for a sample to get you started. (→ See Online Appendixes 3.2 and 3.3 for sample questionnaires.)
- Stand in the hall in the morning and/or between classes and greet students. Encourage more conversations as you see students each day.
- Get to know students in a different setting than the classroom by attending concerts, sporting events, plays, and other special events at school and in the community.
- Consider having lunch with students or chatting with them in the lunch line.

#### **Motivating Students**

The first day of school is the best time to begin developing a positive self-image for individuals and groups. When students begin to think of themselves in a negative way, it's almost impossible to change their opinion. Thus, it's important to praise and reinforce the positive things that occur in your class. At the same time, it's important to not give false praise or overpraise students. They have excellent radar and will know if praise is phony or contrived.

- If you sense a negative self-worth on the part of a student, group, or entire class, let them know you don't agree with it.
- Praise positive attributes such as friendliness, creative thinking, cooperation, politeness, motivation, and caring. Then be more specific and connect the attributes to lessons. (→ See Chapter 8 for more on providing informative feedback.)
- You may find that some students do not respond well to public praise. A brief nod or quiet comment may be more appropriate.
- A quick note telling students of something positive they have done will go a long way.
- Students enjoy praise from teachers, but parents seem to appreciate it even more. A positive phone call, postcard, or e-mail to parents can have a major impact on student learning. Many parents have received phone calls

It's easy to connect with the students who demand our attention: the hand-raisers, the outgoing personalities, those who are genuinely interested in science, and those who use negative behaviors as attentiongrabbers. Getting to know every student is a challenge but it is one of the most important things we can do as teachers.

–Joclyn, grade 7 science teacher

A positive comment to a parent can be the highlight of a child's day.

-Shayna, special education teacher

only when there is a problem, so they welcome the good news, which is readily passed on to their child. ( $\rightarrow$  See Chapter 10, "Parent as Partners.")

• As you plan lessons, consider how you might differentiate them to provide opportunities for all students to be successful. (→ See Chapter 7 for more on differentiation and motivating your class.)

#### **Time Management**



What should I do if I have planned a lesson that I thought would take the entire class time but I have time left at the end of the period?

It's certain that you have heard this previously: You should overplan for your classes. Have more materials and ideas for any block of time than you believe students will require. Even given that, there will still be times when you have more time left over at the end of class. This is the 5–10 minutes that is not enough time to begin the next lesson but too much time to have students idle, which provides opportunities for misbehavior. Be prepared with an extension of the lesson, such as any of the following suggestions for assignments for students:

- An open-ended question about a topic you've been covering that students will hand in when the bell rings
- A question that ties together several ideas you have been studying or applies the work of the day to a different situation
- "What if" questions that encourage critical thinking about the subject you are studying
- A problem that students can pair-and-share
- Simulations or brief video segments related to the lesson
- A "bell-ringer" (→ See Chapter 7 for more on class starters and wrap-up and Chapter 4, "Creating an Environment for Learning.")

#### Your Professional Appearance

Much of my clothing consists of the jeans and T-shirts I wore to classes. Can I wear that type of clothing while teaching?

You must separate your leisure appearance from how you want to be perceived as a professional. It's important to project a professional image while at school. If you can create a strong image of yourself as a teacher, your students will respond with respect, as will other teachers and administrators. You are an adult and a professional. Schools have dress codes or various expectations for the appearance of faculty members. As a first-year teacher, it would be wise to step it up a notch. Don't dress too casually or in styles that are more appropriate for teenagers. That does not mean you must spend a lot of money on a new wardrobe, but try to avoid these errors:

- Dirty or unkempt hair
- Distracting jewelry, slogans, or symbols
- Inappropriate makeup for day wear
- Bad breath, body odor, or too much perfume or aftershave
- Clothing that does not fit properly or cover up appropriately
- Dirty, torn, or crumpled clothing
- Inappropriate footwear (e.g., flip-flops, dirty sneakers)
- Anything that violates the student dress code or lab safety rules, including open-toe shoes in the lab

Clothing cannot make you a better teacher, but your appearance can be a contributing factor to how students perceive you. Your image and reputation begin on the first day of school. Think of the first impression you want to make.

#### **Lesson Planning**

Immediately begin creating your collection of lesson plans and plan ideas. Your lesson plans should not be set in stone and will not be used in exactly the same manner each year, but having a file of them available will save you a great deal of time and energy in the future. Use three-ring binders, a file cabinet, or your computer to keep all of the materials for each lesson together. Whatever system you select for organizing your materials, be sure they are clearly labeled and in the correct location. You will want to be able to locate specific lessons again next year.

- If this has not already been done for you, begin by organizing the science concepts you will teach in chronological order based on developing conceptual understanding and building knowledge. The new A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas (NRC 2011) will help you determine the progression of learning that is important as you consider this order (→ see Resources).
- Determine if your school or department uses a specific model for developing lessons, such as *Understanding by Design* (Wiggins and McTighe 2005), the Madeline Hunter model (Hunter 1994), the BSCS 5E Instructional Model (Bybee 2006), or Marzano's *Art and Science of Teaching* (2007). These resources will provide you with guidelines for preparing your lessons (→ see Resources).
- Consider possible formats for your lesson plans. You may decide that you want to break the activities surrounding a science concept into class session blocks, organize them in a 5E plan, or create an open plan that allows for shifting ideas and activities around within a set time frame.

I keep a pair of my most comfortable, classic shoes at work. If my feet are uncomfortable in my dressier shoes or if I need closed toes to go into a lab, I simply change into my comfortable shoes to get me through the day.

–Lisa, high school principal Reflection is the most important component of lesson planning. At the end of every class, I reflect on what occurred and jot myself a couple of notes concerning how that might impact subsequent lessons for that class or for an individual student.

–Dwayne, grade 9 science teacher Be sure to include formative and summative assessments as part of your plan. Your schedule, students' needs, and your personal work style should all be taken into consideration as you formulate your plans.

- Begin gathering information based on science concepts and skills that you want students to develop. Search the web, find print materials, and speak to colleagues to locate investigations, labs, multimedia resources, inquiry topics, readings that are at your students' levels, possible field trip locations, and guest speakers. Join a Listserv to acquire information concerning what other teachers do to address specific science concepts and skills. ( $\rightarrow$  See Chapter 9, "Creating Professional Development Opportunities.")
- Sort through your collection and organize the selected components in a sequence compatible with the needs of your students. But don't discard the other materials—you may decide to use or modify them as you work through the unit of study.
- Write your lesson plan using all of the selected materials in the format you have chosen.

#### Conclusion

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Subsequent chapters will provide more in-depth information concerning the topics and issues you have encountered during the first weeks of school. If you find there is not enough information in these first three chapters to support your needs, go to the issue-specific chapters now. However, you have plenty to do before delving into the intricacies of each component, and much of the information can wait until you have more time.

#### **Resources** (www.nsta.org/riseandshine)

#### Frameworks

Bybee, R. 2006. The BSCS 5E instructional model: Origins, effectiveness, and application. Colorado Springs: BSCS. www.bscs.org/pdf/bscs5eexecsummary.pdf

- Hunter, M. C. 1994. Enhancing education. New York: Prentice Hall.
- Marzano, R. J. 2007. Art and science of teaching. Alexandria, VA: Association for Supervision and Curriculum Design.

National Research Council (NRC). 2011. A framework for K-12 science education: Practices, crosscutting concepts, and core ideas. Washington, DC: National Academies Press. http://books.nap.edu/catalog.php?record\_id=13165

#### Models

Bybee, R. 2006. The BSCS 5E instructional model: Origins, effectiveness, and application. Colorado Springs: BSCS. www.bscs.org/pdf/bscs5eexecsummary.pdf

Hunter, M. C. 1994. Enhancing education. New York: Prentice Hall.

Marzano, R. J. 2007. Art and science of teaching. Alexandria, VA: Association for Supervision and Curriculum Design.

Wiggins, G., and J. McTighe. 2005. *Understanding by design*. 2nd ed. Alexandria, VA: Association for Supervision and Curriculum Design.

#### Lesson Plan Formats and Templates

Lesson Planning: www.personal.psu.edu/scs15/idweb/lessonplanning.htm Madeline Hunter's Lesson Plan: http://template.aea267.iowapages.org/lessonplan Overview of UbD and the Design Template: www.grantwiggins.org/documents/ UbDQuikvue1005.pdf

#### **Online Appendixes**

- 3.1a Sample Sixth-Grade Syllabus
- 3.1b Sample Seventh-Grade Syllabus
- 3.1c Sample Physics Syllabus
- 3.1d Sample Honors Chemistry Syllabus
- 3.1e Sample Earth Science Syllabus
- 3.2 Student Questionnaire
- 3.3 Parent Questionnaire

## INDEX

#### A

A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas, 27, 81-83 Absence of teacher, 12 preparing for a substitute, 36-37, 97-98 Academic integrity, 40-41 Administrators, 9, 149-150 Allergies of students, 47, 49 American Association for the Advancement of Science (AAAS), 125 Americans with Disabilities Act (ADA), 51 Angry or threatening behavior of parents, 142-143 of students, 44 Animals in classroom, 47-48 Answer sheets for tests, 111 Appearance of teacher, 8, 26–27, 138–139 Arrangement of classroom or lab, 7, 16-17 Art and Science of Teaching, 27 Art of teaching, 171 Assessment(s), 6, 10, 105–118 authentic, 111-112

of bell-ringers, 97 definition of, 106 essay type questions, 105 formative, 108-110 including in lesson plans, 28 indicating level of success on, 117 poor results on, 115 preassessments, 107-108 providing feedback on, 113-114 purpose of, 105, 106 rubrics for, 91, 92, 97, 105-106, 112-113, 114, 116, 154, 161, 167 of science notebooks, 87 student self-assessment, 74, 116-117 summative, 110–112 time management for, 68-69 Attendance of students, 12 Attitude of teacher, 61-70 passion for subject and students, 69-70 qualities of effective teacher, 62-65 self-care and, 65-69 Audiences for student work, 73 Authentic assessments, 111–112

#### **RISE AND SHINE:** A Practical Guide for the Beginning Science Teacher

#### В

Back-to-school night, 138-141 dressing for, 138-139 format for. 139 handouts for, 139 preparing classroom for, 139 speaking to parents at, 140–141 Behavior of students "amnesia" for past mistakes, 65 angry or threatening, 44 annoving, 44 bullying, 43 for class participation, 31-32, 39-40 consequences for, 44 documentation of problems, 44-45 establishing expectations for, 33-34, 146 during lab activities, 56 during last days of school year, 165 off-task or disruptive, 43-45 reward and reinforcement of, 35 rules for, 35-36 Bell-ringers, 26, 96-97 Bigelow, Mary Laverty, 180 Book groups for teachers, 124 Brainstorming, 75 BSCS 5E Instructional Model, 20, 27 Bulletin boards, 16 Bullying, 43 Burnout prevention, 66

#### С

Carnegie Mellon University, 129 Cell phones, 11, 36, 40, 73, 143 Change process, 61–62 Cheating, 40-41 Checklists burnout prevention, 66 components of teacher handbook, 12-13 confrontations with parents, 142 contacting parents, 135 face-to-face conferences with parents, 138 first day, 22-23 first day celebration, 21 first week orientation, 23 handouts for back-to-school night, 140 overcoming student misconceptions, 76 parent resources, 143 people important to you in doing your job, 9 phone conferences with parents, 136-137 preparing classroom for back-to-school night, 139 preparing for a substitute, 37 safety inspection of classroom or lab, 50-51 safety orientation, 53 speaking at back-to-school night, 140-141

supporting the team, 64 teaching philosophy, 5–6 textbook organizer, 85 Chemicals disposal of, 54 Material Safety Data Sheets for, 49, 54 safe handling of, 52 storage of, 53-54 Choosing teaching profession, 4, 6 passion for subject and students, 69-70 Class discussions, 31-32, 39-40 Class list, 13-14 Class starters and wrap-ups, 26, 96-97 Classroom animals and plants in, 47-48 arrangement and organization of, 7, 16-17, 32, 37-39, 172 creating an environment for learning, 15–16, 31-45 determining focal point of, 38 differentiated instruction in, 78-81 discipline in, 22 equipment and supplies for, 10, 14 end-of-year inventory of, 168 inclusion in, 76-78 keys for locked storage areas in, 10 lab activities in, 57-58 safety inspection of, 50-51 visitors to, 36, 49, 65, 67, 142, 155, 156, 158 Classroom climate, 39-45 academic integrity, 40-41 class participation, 31-32, 39-40 off-task or disruptive behavior, 43-45 student diversity, 42 Classroom management, 33-37, 63 definition of, 32 expectations, 33-34 to foster student self-discipline, 33, 35 interruptions and distractions, 36 preparing for a substitute, 36-37, 97-98 routines, 34-35, 145 rules for student behavior, 35-36 Collecting papers from students, 68 Collegiality, 63 Comfort zone of teacher, 61-62 Communication for class participation, 31-32, 39-40 of classroom routines, 34 of expectations, 33 with parents, 133–143 (See also Parents) Community resources for professional development, 128 Conference participation by teachers, 125–126 Conferences with parents, 136–138

face-to-face, 137-138 by phone, 136–137 Confidence, 22 Confrontations with parents, 142–143 Continuing education. See Professional development Contract learning, 74 Controversial topics, teaching of, 142-143 Cooperative learning groups, 90-93. See also Grouping students Council for State Science Supervisors (CSSS), 48 Creating an environment for learning, 15–16, 31-45 Creativity, 64-65 Curiosity of students, 74 Curriculum, 7, 9–10 end-of-year review of, 167

#### D

Differentiated instruction, 78-81 characteristics of, 80-81 definition of. 78-79 grouping for, 80 learning mode and, 80 preassessments for, 108 strategies for, 79-80 time on task and, 80 Discipline, 22 definition of, 32 for off-task or disruptive behavior, 43–45 Disruptive behavior, 43-45 Distractions during class time, 36 Diverse student population, 42 differentiated instruction for, 78-81 English-language learners, 77–78, 114 inclusion of, 76-78 students with special needs, 13, 38, 42 accommodations for participation in lab activities, 49, 51 assistance dogs for, 48 individual education plans for, 13, 38, 42, 122 Documentation of professional development activities, 122 of student behavior problems, 44-45 for teacher evaluation, 160-161 Dress of teachers, 8, 26-27, 138-139

#### Ε

E-learning for professional development, 128–130, 173 E-mail, 8 Earth Science Teachers Association (UK), 125 Einstein, Albert, 1 Elevator, 10 Empathy, 63 End-of-year activities and reflections, 163-170 inventories, 168-169 of classroom and lab equipment and supplies, 168 of personal items, 169 of textbooks and technology, 168-169 learning activities, 165-166 professional activities, 169-170 year in review, 166-167 curriculum and lesson planning, 167 student learning, 166-167 English-language learners (ELLs), 77-78, 114 Exit activities, 97, 109 Expectations of students, 33-34, 42, 146 academic integrity, 40-41 positive, 63 Exploring Safely, 48

#### F

Facebook, 130 Fears on first day of school, 21 Feedback after classroom observation, 154, 155, 158-159 to students, 33, 73, 110, 113-114 Field trips, 13, 15, 95 Final evaluation of teacher, 160 Finding support, 145–150 administrators, 9, 149-150 knowing your team and department, 148-149 mentors, 9, 145-147 Fire drills, 13, 53 First day of school as celebratory occasion, 21-23 checklist for, 22-23 fears about. 21 planning for, 7-17 First week of school, 19–28 first day celebration, 21–23 first day checklist, 22-23 first day fears, 21 getting organized, 23-24 getting to know students, 23-24 lesson planning, 27–28 motivating students, 25-26 orientation. 23 professional appearance, 8, 26-27 time management, 26 Flexibility, 63 "Floater" teachers, 57-58 Formaldehyde-preserved specimens, 54 Formative assessments, 108-110 Froschauer, Linda K., 179-180

#### G

Gardner, Howard, 80 Gifts of lab equipment or supplies, 55 Goals as teacher, 5 Grading system, 12, 117. See also Assessment(s) end-of-year reflections on, 164 Grouping students, 90–93 for cooperative learning, 90–93 for differentiated instruction, 80 making changes in, 93 role assignments for, 92 strategies for, 91–92 Guidance counselor, 9, 42, 44, 49, 142, 148

#### н

Handbook for teachers, 8, 11–13 Health of teacher, 65–69, 174 Holding a grudge, 65 Home science projects, 89–90 Homework, 12, 98–99 Humor, 65, 172

#### I

Inclusion, 76-78 Individualized education plan (IEP), 13, 38, 42, 122 Individualized professional development plan (IPDP), 122 Inquiring Safely, 48 Inquiry-based teaching, 71-72, 173 Inservice training, 122 Intelligences linked to learning styles, 80 Internet connectivity, 11 Interruptions during class time, 36 Introducing yourself, 22 Inventories at end of year, 168-169 classroom and lab equipment and supplies, 168 personal items, 169 textbooks and technology, 168-169 of materials and equipment, 14, 55 Investigating Safely, 48, 54

#### к

Keys for locked areas, 10, 54 KWL charts, 108, 109, 116

#### L

Lab activities, 55–57 in classroom, 57–58 cleaning up after, 57 inquiry-based, 71–72, 173 interrupted by lunch, 58

number of, 71, 72 preparation for, 55–56 resources for finding, 55 safety guidelines for, 55-57 student misbehavior during, 56 with substitute teacher, 56 time management for, 56-57 Lab equipment and supplies, 53-55 gifts of, 55 inventory of, 14, 55 at end of year, 168 preventing theft of, 55, 169 security of, 54-55 storage of, 53-54 at end of year, 55 Lab reports, 20, 75, 107, 109, 112, 113, 116 Lab rules, 52 Lab safety. See Safety in the laboratory Lab sharing, 58 Leadership, 127 Learning beyond the classroom, 2 big picture skills for, 1-2contract, 74 cooperative groups for, 90-93 creating environment for, 15-16, 31-45 classroom climate, 39-45 classroom management, 33-37 classroom organization, 7, 16-17, 32, 37-39, 172 definitions related to, 32 differentiation and, 80 end-of-year activities for, 165-166 end-of-year review of, 166-167 relevance of activities for, 73 styles of, 80 Learning community professional, 3-4, 126-127 students as members of, 74 Learning goals, 72, 106, 107 matching summative assessments to, 111 for teachers' professional development, 122, 123 - 124Learning needs of students, 77 Lesson development, 81-84 Lesson plans, 19, 27–28 annotation of, 20 components of, 20 electronic files of, 20 end-of-year review of, 164, 167 formats for, 27 organization of, 19, 20, 27 providing opportunities for student success, 26 revising and adapting for future use, 167, 173

templates for, 20, 27 time management for, 26 Librarian, 148 Listservs, 9, 28, 122, 130, 147 Locked lab and storage areas, 13, 14, 53–55 keys for, 10, 54 maintaining inventory of, 55 security of, 54–55

#### М

Massachusetts Institute of Technology (MIT), 130 Mastery of teaching science, 63–64 Material Safety Data Sheets (MSDS), 49, 54 Media specialist, 148 Mental and physical health of teacher, 65–69, 174 Mentors, 9, 145–147 Misconceptions of students, 75–76 Modeling, 8, 33, 39, 75, 172 Motivating students, 25–26, 73–74

#### Ν

National Aeronautics and Space Administration (NASA), 126 National Association for Research in Science Teaching (NARST), 125 National Earth Science Teachers Association (NESTA), 125 National Oceanic and Atmospheric Administration (NOAA), 126 National Research Council, 81 National Science Education Leadership Association (NSELA), 48 National Science Teachers Association (NSTA), 125 journals of, 122 Learning Center resources of, 122 position on scientific inquiry, 71 safety publications of, 15, 48, 52 National Staff Development Council, 126 Networking, professional, 130–131 Next Generation Science Standards, 81 Notebooks, 86-87

#### 0

Observation checklist, 109 Observation of teachers, 154, 155 feedback from, 154, 155 formal, 156–159 conduct during, 158 discussion and feedback after, 158–159 preparation before, 157 self-evaluation of video, 160 walk-throughs for, 153–154, 156 Off-task behavior, 43–45 Online appendixes, xi. See also chapter resource lists
Online courses for professional development, 128–130, 173
Open house with parents, 139
Open University, 130
Organization, 23–24
of classroom, 7, 16–17, 32, 37–39, 172
at end of year, 164
of lesson plans, 19, 20, 27
Orientation
during first week, 23
safety, 53
Outdoor science activities, 10–11

#### Ρ

Parents, 133-143 conferences with, 136-138 face-to-face, 137-138 by phone, 136-137 contacting, 135-136 to praise students, 25-26, 133 to report disruptive behavior, 44 to send safety contract home, 53 including comments on report cards to, 141-142 meeting at back-to-school night, 138-141 with political and volatile agendas, 142-143 as resources, 143 support by, 133 Passes for students, 68 Passion for subject and students, 69-70 Passwords for online resources, 8, 11 Patience, 63 Pedagogical knowledge, 69-70 Pets in school, 48 Philosophy of teaching, 4–6, 167 Physical and mental health of teacher, 65–69, 174 Planning for first day of school, 7-17 being prepared, 17 considering classroom or lab arrangement, 16 - 17creating a positive and inviting classroom environment for learning, 15-16 examining inventory of materials and equipment, 14 exploring environment, 10-11 knowing curriculum, 9-10 knowing technology, 11 making "safety first" your motto, 15 meeting people, 9 reading teacher handbook, 11-13 studying schedule and class list, 13-14 Plants in classroom, 47-48

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#### INDEX

Portfolio of student work, 172 Preassessments, 107–108 Principal, 9, 149-150 classroom observation by, 154, 155 walk-throughs by, 153-154, 156 Probes, 108 Professional activities at end of year, 169–170 Professional appearance, 8, 26–27 Professional associations, 124–125 Professional development, 6, 121-131 book groups for, 124 conference participation for, 125–126 determining content knowledge needs for, 164 developing a plan for, 122, 123-124 documentation of activities for, 122 via e-learning, 128-130, 173 professional associations for, 124-125 professional learning communities for, 3-4, 126-127 professional networking for, 130-131 using community resources for, 128 Professional learning communities (PLCs), 3-4, 126-127 Professional networking, 130–131 Professional resources, 8

#### Q

Qualities of effective teachers, 62-65

#### R

Reading skills, 83-85 boosting science vocabulary, 88-89 Recycling, 10 Reflections for teacher self-evaluation, 159 at end of year, 164, 171–173 Relevance of learning activities, 73 Report card comments, 141–142 Respect, 26, 33, 39, 42, 65, 67, 69, 70, 79 Rigor of tasks, 73 Routines, 34–35, 145 for substitute teacher, 37 Rubrics, 91, 92, 97, 105–106, 112–113, 114, 116, 154, 161, 167 Rules and regulations, 3–4, 21, 22 for safety, 13, 14, 23, 35, 48, 52–53, 58, 135, 140 for student behavior, 35-36

#### S

Safety equipment, 7, 8, 15, 37, 51, 52 Safety guidelines, 13, 14, 35 for handling of chemicals, 52 lab rules, 52 NSTA publications for, 48 Safety in the laboratory, 15, 47–58

challenging circumstances, 57-58 lab activities, 55-57 lab equipment and supplies, 53-55 gifts of, 55 security of, 54-55 storage of, 53-54 lab rules, 52 role of science teacher, 49 safety contracts and student orientation, 23, 35, 48, 52-53, 58, 135, 140 safety inspection of classroom or lab, 50-51 Safety in the Science Classroom document, 15, 48, 52 Safety officer, 49, 54, 57 Scaffolding, 72 Schedules for first day of school, 21 for individual teacher, 13-14 posting on bulletin boards, 16 for school, 12 for substitute teacher, 37 School community, 8 School culture, 14 School district learning about, 8 regulations of, 3-4 School environment, 10–11 School yearbooks, 14, 25 Science & Children, 122 Science department chair, 148 Science notebooks, 86-87 Science projects, 73, 89–90 Science reading and writing, 83-85 Science Scope, 122 Scientific inquiry, 71–72, 173 Seating arrangement, 38–39 Seating charts, 24, 37 Secretary to principal, 9 Security of lab equipment and supplies, 55, 169 Self-assessment by students, 74, 116–117 Self-care of teacher, 65-69, 174 Self-evaluation of teacher, 159-160 Sharing a lab, 58 Social media, 8, 130 Socioeconomic factors, 42 Special education supervisor, 148 Special events, 13 Special-needs students, 13, 38, 42 accommodations for participation in lab activities, 49, 51 assistance dogs for, 48 individual education plans for, 13, 38, 42, 122 Storage areas, 13, 14, 53–55 end-of-year organization of, 164

keys for, 10, 54 labeling of, 54 maintaining inventory of, 55 security of, 54-55 Stress of teaching, 67 Students allergies of, 47, 49 assigning everyday tasks to, 67-68 attendance of, 12 big picture skills for, 1-2celebrating successes of, 73 cheating by, 40-41 class list of, 13-14 classroom routines for, 34–35, 145 collecting papers from, 68 curiosity of, 74 differentiated instruction for, 78-81 diversity of, 42 encouraging participation of, 31-32, 39-40 English-language learners, 77–78, 114 establishing a sense of belonging for, 74 establishing expectations for, 33-34 fostering self-discipline of, 33, 35 getting acquainted with, 24-25, 69 handbook for, 8 inclusion of, 76-78 introducing yourself to, 22 learning names of, 24-25 learning needs of, 77 learning styles of, 80 motivation of, 25-26, 73-74 number per class, 13 overcoming misconceptions of, 75-76 parents of, 133-143 passes for, 68 patience with, 63 praising of, 25 providing audiences for work of, 73 providing choices for, 33-34, 74 providing feedback to, 33, 73, 110, 113-114 questioning "why do we have to learn this?", 93 seating charts for, 24, 37 self-assessment by, 74, 116-117 socioeconomic situations of, 42 with special needs, 13, 38, 42, 48, 49 struggling, 74 study strategies for, 94 teacher evaluation by, 165 teacher's passion for subject and, 69-70 what they want of teachers, 70 Study strategies, 94 Substitute teacher, 12 lab activities with, 56 preparing for, 36-37, 97-98

Summative assessments, 110–112 Supplies for classroom, 10, 14 end-of-year inventory of, 168–169 for lab, 53–55 security of, 55, 169 Syllabus for course, 37

#### Т

Teacher evaluation, 153-161 classroom observation for, 154, 155 components of, 154 documentation for, 160-161 final, 160 formal observations for, 156-158 conduct during, 158 discussion and feedback after, 158–159 preparation before, 157 reflection and self-evaluation, 159-160 by students, 165 walk-throughs for, 153-154, 156 Teacher handbook, 8, 11–13 Teacher organization representative, 148 Teachers absences of, 12 attitude of, 61-70 comfort zone of, 61-62 conference participation by, 125–126 dress and appearance of, 8, 26–27, 138–139 duties and responsibilities of, 12 effective, qualities of, 62-65 finding support, 145-150 "floaters," 57-58 goals and objectives of, 5 handbook for, 8, 11-13 modeling by, 8, 33, 39, 75, 172 passion for subject and students, 69-70 personal items of, 169 preparing for first day of school, 7-17 preventing burnout of, 66 professional appearance of, 8, 26-27 professional associations for, 124-125 professional development of, 6, 121-131 in professional learning communities, 3-4, 126 - 127reasons for choosing profession, 4, 6, 69-70 role in safety, 49 self-care of, 65-69 substitute, 12, 36-37, 56, 97-98 teaching role of, 2-3 as team members, 3, 64 use of social media by, 8 what students want from, 70 Teaching philosophy, 4-6, 167

#### RISE AND SHINE: A Practical Guide for the Beginning Science Teacher

Teaching strategies, 5-6, 71-99 answering "why do we have to learn this?", 93 to boost science vocabulary, 88-89 class starters and wrap-ups, 96-97 cooperative learning groups, 90-93 developing repertoire of, 72 differentiation, 78-81 end-of-year reflections on, 164 field trips, 95 homework, 98-99 inclusion, 76-78 lesson development, 81-84 modeling, 75 to overcome misconceptions, 75-76 preparing for a substitute, 36-37, 97-98 science notebooks, 86-87 science projects, 89-90 science reading and writing, 84-86 student motivation, 25-26, 73-74 teaching study strategies, 94 use of technology, 95–96 Team support, 3, 64 Technology, 95–96 end-of-year inventory of, 168-169 knowing what is available, 7, 11 obtaining passwords for online resources, 8, 11 teacher web pages, 11 Technology coordinator, 148, 168 Telephone conferences with parents, 136–137 Templates for lesson plans, 20, 27 Tests, 110–112. See also Assessment(s) Textbooks, 7, 10, 84-85 end-of-year inventory of, 168 vocabulary in, 88-89 The Science Teacher, 122 Theft of lab equipment, prevention of, 55, 169 Think-alouds, 75, 84, 89 Think-pair-share strategy, 109 Three-time rule, 62 Time management, 26 for assessments, 68–69

for lab activities, 56–57 for self-care of teacher, 65–68 Time on task and differentiated instruction, 80 Time-outs, 44 Tomlinson, Carol, 78–79 Tufts University, 130 Twitter, 130

#### υ

Understanding by Design, 20, 27 Universities online courses of, 128–130, 173 as resource, 128 University of California, Berkeley, 130 USB flash drives, 11

#### V

Visitors to classroom, 36, 49, 65, 67, 142, 155, 156, 158 Visual literacy, 85 Vocabulary in science teaching strategies for development of, 88–89 word wall of, 78

#### W

Walk-throughs for teacher evaluation, 153–154, 156
Warm-ups and wrap-ups, 26, 96–97
Word wall, 78
Workshops, 7, 8, 11, 36, 61, 122, 124, 128, 169, 170
Writing skills, 83–85
lab reports, 20, 75, 107, 109, 112, 113, 116
science notebooks, 86–87

#### Y

Year in review, 166–167 curriculum and lesson planning, 167 student learning, 166–167

## RISEA A Practical Guide for the

### Beginning SCIENCE TEACHER

"In working with new teachers, it has been our experience that they often feel overwhelmed. Once they are in the 'real world,' they must cope with challenges such as the balance between professional and personal responsibilities, the development of their own teaching styles, technology, assessments, professional development, laboratory setup and inventory, time management, and interactions with parents. It is our intent to show new teachers that they are not alone in their feelings and that there are many sources of support for them."

- Linda Froschauer and Mary Laverty Bigelow, authors of *Rise and Shine* 

Rise and Shine provides a friendly support system that new science teachers can turn to in their first days, months, and years in the classroom. The book offers widely applicable recommendations about some essential topics:

- What you need to know before you open your classroom door
- How to create an environment for learning with the help of good classroom management, organization, and student engagement
- An overview of effective instructional strategies, including differentiation, technology, overcoming misconceptions, inclusion, and formative assessments
- How to make parents your partners
- How to personalize your professional development •
- How to prepare for your first evaluation

But you should also note the emphasis on *science*. The book covers important sciencespecific topics, such as promoting safety in the classroom and laboratory; arranging your classroom or lab for science; reading, writing, and incorporating projects in science; and initiating inquiry from the first day of school.

Sprinkled throughout the book is candid advice from seasoned science teachers who offer both useful strategies and warm reassurances. Rise and Shine is designed to help preservice teachers, those in the first few years of science teaching (regardless of grade level), and those who may be entering a new situation within the teaching field. If you need a mentor-or if you are a mentor or instructor who wants to support beginning science teachers—this book is for you.



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