

Peer



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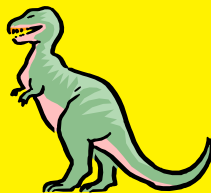
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Learning



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4



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Strategies

Math Methods for Kindergarten

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Dear Educator,

Thank you for your interest in the Kindergarten Math PALS intervention program developed at Vanderbilt University. We are pleased to offer you this excerpt to review.

These pages from the Kindergarten Math PALS manual are provided as a courtesy to allow you to preview a representative sampling of the PALS Math intervention program for Kindergarten students or students reading at a Kindergarten proficiency level. This excerpt includes the following:

1. Table of Contents
2. Introduction
3. Lesson 1: *Training*
 - a. Day 1
 - b. Day 2
 - c. Day 3
4. Lesson 2 *Number Recognition (0-10)*
5. Lesson 11 *Picture Addition*
6. Game Boards
 - a. Lesson 1 Day 2
 - b. Lesson 1 Day 3
 - c. Lesson 2 Day 1
 - d. Lesson 2 Day 2
 - e. Lesson 11 Day 1A
 - f. Lesson 11 Day 1B
 - g. Lesson 11 Day 2A
 - h. Lesson 11 Day 2B
7. Manipulatives
 - a. Manipulatives
 - b. PALS Rules
 - c. Smiley Sheet Day 1 & 2
 - d. Smiley Sheet Day 1, 2 & 3

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TABLE OF CONTENTS

INTRODUCTION

Introduction	7
How to use this manual	8
Overview	9
Materials	10
Materials List	11
Scheduling.....	13
Pairing Students.....	14
Handling absentees and uneven numbers of students.....	15
Moving students to and from partners.....	15
Lesson Sequence.....	17

TRAINING

Lesson 1: <i>Training</i>	
Day 1	21
Day 2	25
Day 3	29

NUMBER CONCEPTS

Lesson 2: <i>Number Recognition (0-10)</i>	33
Lesson 3: <i>Number Recognition (0-19)</i>	37
Lesson 4: <i>Illustrating Numbers (0-9)</i>	41
Lesson 5: <i>Illustrating Numbers (0-9)</i>	45
Lesson 6: <i>Writing Numbers</i>	49

COMPARING NUMBERS

Lesson 7: <i>Which is More?</i>	53
Lesson 8: <i>Which is Less?</i>	57
Lesson 9: <i>More and Less with Spinner</i>	63
Lesson 10: <i>More and Less with Number Line</i>	67

ADDITION AND SUBTRACTION CONCEPTS

Lesson 11: <i>Picture Addition</i>	71
Lesson 12: <i>Picture Subtraction</i>	77
Lesson 13: <i>Picture Addition and Subtraction</i>	83
Lesson 14: <i>Bean Addition</i>	89
Lesson 15: <i>Bean Subtraction</i>	95
Lesson 16: <i>Bean Addition and Subtraction</i>	101

GAME BOARDS

(Lessons 1-16)	107
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MANIPULATIVES

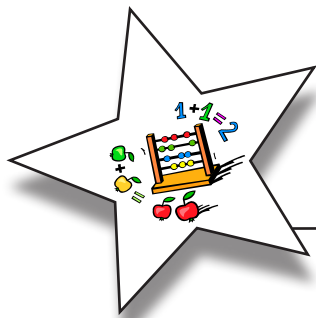
Materials List	233
Partner Rules	235
Student Assignment Chart	237
Smiley Sheets	
Two Day Smiley Sheet.....	239
Three Day Smiley Sheet	241
Teacher Number Line.....	243
Student Number Lines	
0-10 Number Line	247
0-20 Number Line	249
0-50 Number Line	253
0-100 Number Line.....	257
Bean Sheet	261
Spinner	263
Bean Pot and Circle.....	265

CHALLENGE GAME BOARDS

Extra Board Games.....	267
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INTRODUCTION

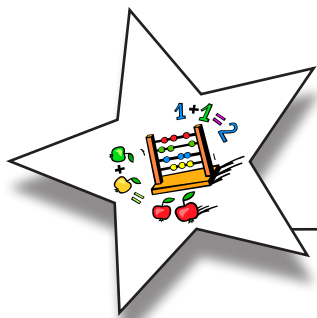


INTRODUCTION

Welcome to Peer-Assisted Learning Strategies (PALS) Math! We are excited that you have chosen to implement PALS. Repeated scientific evaluations of PALS Reading and PALS Math indicate that high-achieving, average-achieving, and low-achieving students, as well as students with learning disabilities, make greater progress in PALS classrooms than their counterparts in non-PALS classrooms.

PALS Reading and PALS Math were approved by the U.S. Department of Education's Program Effectiveness Panel as an effective educational practice. Additionally, PALS Math is listed among the best evidence-supported math programs on the Johns Hopkins University website, Best Evidence Encyclopedia (BEE).

PALS was initially based on Classwide Peer Tutoring (CWPT), developed at Juniper Gardens Children's Project in Kansas City in the late 1970s. Like CWPT, PALS is structured to increase the time students are engaged in academic tasks and to facilitate immediate corrective feedback between peers. PALS Math activities extend beyond CWPT's math facts to address key calculation, concepts, and applications representing the curriculum at Kindergarten, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, and Grade 6. The activities are designed to be effective, efficient, and user-friendly.



HOW TO USE THIS MANUAL

This manual provides all the information you need to implement Kindergarten Math PALS.

For PALS to run smoothly and result in better achievement outcomes, it is essential that you teach your students each and every principle covered in this manual. Teachers rely on different strategies for using this manual. For example, some teachers study the script and prepare an outline; then, they use that outline to deliver the training in their own words. Other teachers, however, after studying the script, still rely heavily on the wording of the script to deliver the lessons. In either case, it is necessary to **study** the script before delivery; without sufficient study, reading the script seems stilted and is not effective. In all cases, you should deviate from the script to elaborate concepts your students do not seem to understand.

IN THIS MANUAL

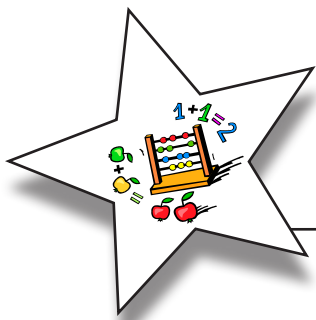
This manual contains:

- Teacher Lessons
- Game Board Templates
- Manipulatives Templates
- Challenge Game Board Templates

The **Teacher Lessons** are guides for the teacher to use for delivering each lesson. As mentioned above, it is essential that teachers teach all the principles outlined in each lesson. Each new lesson (i.e., Day 1) has a script. For Day 2 of each lesson, the teacher should provide instruction as necessary. If Day 2 of a lesson contains significant changes, an *Announcement* is provided within the Teacher Lesson.

The **Game Boards** are the worksheets that the pair share when working on a PALS lesson. Some lessons require additional manipulatives. See page 13 for additional information.

To extend some of the lessons, **Challenge Game Boards** are included in the back of this manual.



OVERVIEW

In Kindergarten, Math PALS is typically conducted **two** times each week for **16 weeks**. Each session lasts approximately **20-25 minutes**. During each session, all students in the class are paired and work together on a game board introduced during the teacher lesson.

SKILLS

The following skill areas are available in Kindergarten Math PALS:

- Number recognition
- Comparing numbers
- Addition and subtraction

ACTIVITIES

Math PALS comprises two major activities:

TEACHER LESSON

- On Day 1 of each week, the teacher teaches the students how to use the game board. The teacher demonstrates the role of the tutor (Coach) and the tutee (Player). The teacher also reviews any important mathematical concepts.
- The teacher lesson lasts approximately 5-10 minutes.

PAIR PRACTICE

- Students take turns as Coach and Player. The higher-performing student is the first Coach, and the lower-performing student is the first Player. Students switch roles throughout the lesson when signaled by a flag on the game board.
- The teacher monitors pairs and provides feedback when necessary.



MATERIALS

Each PALS session requires **Game board** for each pair.

What number? ? Show how many.  Lesson 1 Day 2	2	5	1	3	0
	4	1	0	2	😊 
	2	0	4	3	5
	4	5	0	1	😊 
	0	1	5	3	2
	3	5	0	2	😊 

The Coach's prompts are on the left-hand side. The Player works on the right-hand side. The flag signals students to switch roles (i.e., the Coach becomes the Player, and the Player becomes the Coach). The smiley face signals the Player to mark one smiley face on the Smiley Sheet.

Each PALS session also requires a **Smiley Sheet** for each pair, which is used as a motivation strategy throughout the PALS lesson.

Smiley Sheet					
Day 1			Day 2		
😊	😊	😊	😊	😊	😊
😊	😊	😊	😊	😊	😊
😊	😊	😊	😊	😊	😊
😊	😊	😊	😊	😊	😊



MATERIALS LIST

Before preparing the manipulatives, determine the number of student pairs because the number of pairs determines the number of manipulatives you will make.

* A template is included in the manual.

***Student Assignment Chart**

This chart is used to write the names of the student pairs. You need a new assignment chart every few weeks.

***PALS Rules - Lessons 1-16**

A poster-size copy of the PALS rules should be made to hang in the classroom. It might be helpful to laminate the Rules poster.

***Smiley Sheet - Lessons 1-16**

Each week, student pairs use a new Smiley Sheet. Each week, you need enough copies of the Smiley Sheet for each pair. Some teachers laminate the Smiley Sheet for use week after week.

- Example: 10 student pairs $\times$ 16 weeks of PALS = 160 Smiley Sheet copies

***Teacher Posters - Lessons 1-16**

During each teacher-directed lesson, you need a copy of the student game board to model the activity. These game boards can be enlarged on a 11" by 17" sheet of paper, or they can be displayed via projector.

Student Folders

All of the PALS materials for each pair will be kept in a two-pocket folder. The left-hand side of the folder should be marked "New" and the right-hand side of the folder should be marked "Old." The folder will be filled on the "New" side with the new game boards and Smiley Sheet at the beginning of each week. Once the students have finished each game board, they will place it on the "Old" side of the folder. Each pair in the classroom will need their own folder. Folders can be purchased at any office supply store.

- Example: 10 student pairs = 10 folders

***Teacher Number Line - Lessons 7, 8, 9**

The Teacher Number Line is used during teacher-directed lessons. It is used specifically in three lessons, but it may be helpful to use with other lessons. This number line can also be enlarged and laminated.

***Student Number Line - Lesson 10**

Each student pair needs a Student Number Line. The number line is used specifically in one lesson, but students may find it helpful to use it with other lessons. It may be helpful to copy the number line on card stock or laminate. Students use the 0-10 number line. Other number lines are included (0-20, 0-50, 0-100) if students are using the Challenge Game Boards with larger number increments.

- Example: 10 student pairs = 10 student (0-10) number lines

Clothespins - Lesson 10

Each student pair needs a clothespin to be used with the number line listed above. Clothespins can be purchased at a local grocery store.

- Example: 10 student pairs = 10 clothespins

***Bean Sheet - Lessons 7, 8, 9**

Each pair needs a copy of the Bean Sheet. It might be helpful to copy onto card stock or laminate.

- Example: 10 student pairs = 10 Bean Sheet papers

Beans - Lessons 7, 8, 9, 14, 15, 16

Each student pair needs a plastic bag with approximately 12-15 beans. These beans are used with the Bean Sheet and Bean Pot and Circle Sheet listed below. Kidney beans are a good-size bean for students to use and can be purchased from a local grocery store. Also purchase small plastic bags to hold the beans.

- Example: 10 student pairs $\times$ 15 beans = 150 beans, 10 baggies

***Spinners - Lesson 9**

Each student pair needs a copy of the Spinner with a plastic spinner inserted in the middle. It might be helpful to copy the Spinner on card stock or laminate. Plastic spinners can be purchased at local teacher supply stores or an arts and crafts store.

- Example: 10 student pairs = 10 spinners

***Bean Pot and Circle Sheet - Lessons 14, 15, 16**

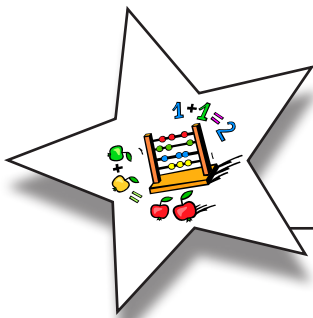
Each student pair needs a copy of the Bean Pot and Circle. It might be helpful to copy the paper on card stock or laminate it.

- Example: 10 student pairs = 10 Bean Pot papers



SCHEDULING

1. Schedule a time for Kindergarten PALS to occur two times each week, approximately 25 minutes per session (e.g., Tuesdays and Thursdays from 9:35-10:00 am). *Please note that the first week of Math PALS has three sessions.*
2. Each week, conduct PALS on the same days and at the same time.
3. Schedule PALS when all students are routinely present. Avoid periods when students are out of class for special activities.



PAIRING STUDENTS

For PALS, pair each student with a partner. Use assessment information that is routinely available to you as the basis for formulating pairs.

1. Rank order your students in terms of their overall mathematics skill. Write the name of your strongest math student at the top of the list (i.e., Student 1), then write the name of your second-best math student (i.e., Student 2) and so on, ending with the weakest math student at the bottom (i.e., Student 20).
2. Pair your highest math student with your lowest math student; pair your second-highest math student with your second-lowest math student; and so on.

	First Coach	Second Coach
Pair 1	Student #1	Student #20
Pair 2	Student #2	Student #19
Pair 3	Student #3	Student #18
Pair 4	Student #4	Student #17
Pair 5	Student #5	Student #16
Pair 6	Student #6	Student #15
Pair 7	Student #7	Student #14
Pair 8	Student #8	Student #13
Pair 9	Student #9	Student #12
Pair 10	Student #10	Student #11

Student #1 is the highest-performing student.
Student #20 is the lowest-performing student.

3. Reassign pairs every 4-6 lesson.

HANDLING ABSENTEES AND UNEVEN NUMBERS OF STUDENTS

Sometimes students are absent or classrooms have uneven numbers of students. Before each PALS session, ask students if any partners are missing. If so, try to place odd students into pairs that make sense. If you need to create a triad, use these procedures.

1. If two students are firm on the lesson's skill and one student is weak on the lesson's skill, designate the stronger students both as "first Coaches" and the weaker student as the "second Coach." While two students are both Coaches, have them take turns, problem-by-problem, fulfilling this role.
2. If only one student is firm on the lesson's skill and the two remaining students are weak on the lesson's skill, designate the stronger student as "first Coach" and the remaining two students as "second Coaches." While two students are both Players, have the Coach fulfill his/her coaching role with both Players (i.e., correction and helping procedures), but have Players take turns.

MOVING STUDENTS TO AND FROM PARTNERS

Keep PALS folders in one place in the classroom where students can find materials quickly.

In the classroom, post the Student Assignment Chart with the names of the Coaches and Players. Ask the second Coaches (i.e., Players) to stand, get their pencil. Ask the first Coaches to stand and get their folder. Encourage students to sit next to their partner. You may prefer to have second Coaches stand behind their partners until you make seating arrangements.



LESSON SEQUENCE

Lesson	Unit/Title	Day	Description
1	Training <i>Training</i>	1	Introduction to PALS
		2	Introduction to PALS
		3	Introduction to number concepts
2	Number Concepts <i>Number Recognition (0-10)</i>	1	Introduction to recognizing numbers (0-10)
		2	Recognizing numbers (0-10)
3	Number Concepts <i>Number Recognition (0-19)</i>	1	Introduction to recognizing numbers (0-19)
		2	Recognizing numbers (0-19)
4	Number Concepts <i>Illustrating Numbers (0-9)</i>	1	Introduction to drawing lines to represent numbers (0-9)
		2	Drawing lines to represent numbers (0-9)
5	Number Concepts <i>Illustrating Numbers (0-19)</i>	1	Introduction to drawing bundles and lines for numbers (0-19)
		2	Drawing bundles and lines for numbers (0-19)
6	Number Concepts <i>Writing Numbers</i>	1	Introduction to writing numbers (0-9)
		2	Counting dots and writing numbers (0-9)
7	Comparing Numbers <i>Which is More?</i>	1	Introduction to deciding which is more using pictures (0-9)
		2	Deciding which is more using numbers (0-9)
8	Comparing Numbers <i>Which is Less?</i>	1	Introduction to deciding which is less using pictures (0-9)
		2	Deciding which is less using numbers (0-9)

Lesson	Unit/Title	Day	Description
9	Comparing Numbers <i>More and Less with Spinner</i>	1	Introduction to more and less using spinner (0-9)
		2	More and less using spinner (0-9)
10	Comparing Numbers <i>More and Less with Number Line</i>	1	Introduction to more and less using number line (0-9)
		2	More and less using number line (0-9)
11	Addition and Subtraction Concepts <i>Picture Addition</i>	1	Introduction to addition using pictures (0-9)
		2	Addition using pictures (0-9)
12	Addition and Subtraction Concepts <i>Picture Subtraction</i>	1	Introduction to subtraction using pictures (0-9)
		2	Subtraction using pictures (0-9)
13	Addition and Subtraction Concepts <i>Picture Addition and Subtraction</i>	1	Introduction to addition and subtraction using pictures (0-9)
		2	Addition and subtraction using pictures (0-9)
14	Addition and Subtraction Concepts <i>Bean Addition</i>	1	Introduction to addition using beans (0-9)
		2	Addition using beans (0-9)
15	Addition and Subtraction Concepts <i>Bean Subtraction</i>	1	Introduction to subtraction using beans (0-9)
		2	Subtraction using beans (0-9)
16	Addition and Subtraction Concepts <i>Bean Addition and Subtraction</i>	1	Introduction to addition and subtraction using beans (0-9)
		2	Addition and subtraction using beans (0-9)



LESSONS



LESSON 1

Day 1

Students Learn

- PALS Rules

MATERIALS

- ☆ PALS Rules poster

GUIDING GRAPHICS



Use
Poster

Today I'm going to tell you about a new activity called PALS (write PALS on the board). **What does the word pal mean?**

STUDENTS: - pals are friends
- pals are people you do things with
- a pal is someone you talk to and share things with
- pals are nice to each other

Good. We'll begin our PALS activities in a few days. Everyone will have a special partner just for PALS. You and your PALS partner will work together to learn math. What will you and your PALS partner work on?

STUDENTS: Learning math.



PALS Rules

(Display PALS Rules poster. We suggest that you hang the Rules poster in a permanent place in your classroom.)

In PALS, you will also learn how to work together with your partner. To be a good partner, you need to do three things. We call these three things our PALS rules.

The first PALS rule is to talk only to your partner and talk only about math (refer to PALS Rules Poster #1). **Why do you think it's important to talk only to your partner and only about math?**

STUDENTS: - so you can concentrate on your work and stay on task
- so you don't get distracted by other things
- so you don't bother others working around you

Good job. Now, if I was talking to my partner about recess and also talking with a student across the room, would I be a good PALS partner or bad PALS partner? Why?

STUDENTS: - bad PALS partners
- you were not talking about math
- you were talking to and distracting other students

Good. Now if I was talking about math and talking only to my partner, would I be a good PALS partner or bad PALS partner? Why?

STUDENTS: - good PALS partner!
- you were talking only about math and you were doing your work
- you did not talk to other students but only to your own PALS partner.

You're doing a great job listening and answering my questions!

The second PALS rule is to use a soft PALS voice (refer to PALS Rules Poster #2). **We have different kinds of voices. When we're outside, it's OK to use a loud voice. But when you answer a question in class, you use a softer, quieter voice than outside. Still, you speak loudly enough for the class to hear you. But when we do PALS we don't want the whole class to hear us. With everyone talking at the same time, that would be too loud.**

So, we need to have special PALS voices like this. (Demonstrate a very soft voice. Then demonstrate different level voices and have class decide if it's an outside, in class or PALS voice.) **Why do you think it's important to use a soft voice?**

STUDENTS: - so you don't distract others around you
- because yelling is rude and not helpful

The third PALS rule is to be nice and helpful to your partner (refer to PALS Rules Poster #3). **During PALS, you and your partner are a team. It's very important that you work well together. You should be nice to your PALS partner. What does it mean to be nice?**

STUDENTS: - be polite to your partner
- don't get angry with your partner
- listen and pay attention to your partner

Very good. You should also be helpful to your partner. What does it mean to be helpful?

STUDENTS: - help your partner if they are having trouble
- if both of you need help, raise your hand for the teacher
- help your partner understand questions if they need help

Good job. Do you like it when I tell you that you're doing a good job? We all like to know when we're doing well. So, it's important to let your partner know when he or she is doing a good job. This is part of being a nice and helpful PALS partner. Say something like, "Good job!" or "Nice work!" What other ways can you tell your partners they're doing well?

STUDENTS: - good job
- great work
- keep up the good work

Good job. Now, if I was not helping my partner and making fun of him, would we be good PALS partners or bad PALS partners? Why?

STUDENTS: - bad PALS partners
- you were not nice to each other
- you made fun of one another
- you were not helpful to your partner

Very nice. If I was helping my partner and telling him that he's doing a good job, would we be good PALS partners or bad PALS partners? Why?

STUDENTS: - good PALS partners
- you were being nice and using nice words
- you were being helpful to one another
- you were encouraging each other

Does anyone have any questions about being a good PALS partner?

STUDENTS: (Ask questions if needed.)

Good work! Let's review the three PALS rules. (Refer to PALS Rules Poster.) **What are the three PALS rules?**

STUDENTS: - Talk only to your partner and talk only about math.
- Use a soft "PALS" voice.
- Be nice and helpful.

Nice work for today. We'll talk more about this next time.



LESSON 1

Day 2

Students Learn

- Role of Coach
- Role of Player
- How to use game board
- Correction procedure

MATERIALS

- ☆ PALS Rules poster
- ☆ Smiley Sheet poster
- ☆ Lesson 1 Day 2 Game Board poster

GUIDING GRAPHICS



Use
Poster



Use
Game Board

Today, we're going to learn more about PALS. What do you work on with your PALS partner?

STUDENTS: Math



PALS Rules

That's right. When you and your PALS partner are working together to learn math, it's very important that you work well together. What are the PALS rules?

STUDENTS: - Talk only to your partner and only about math.
- Use a soft "PALS" voice.
- Be nice and helpful.

Good. There are two jobs in PALS: Coach and Player. Both of these jobs are very important.

If you are the Coach, your job is just like the Coach of a football team. You need to help your partner in every way possible so that he will be good at math.

If you are the Player, you need to listen carefully to the Coach's directions and try your best. During PALS, you and your partner will take turns doing both jobs. When you're not the Coach, you'll be the Player.



Lesson 1
Day 2

Look up here. (Show Lesson 1 Day 2 poster). **When we do PALS, we'll use game boards like these. When you're the Coach, you'll ask questions and the Player will answer. These are the Coach's questions.** (Point to Coach's questions.) **Let me show you what I mean.**

I'll be the Coach and you'll all be the Players. The Coach points to the number like this and asks, "What number?" Watch how I point carefully with the tip of my finger. I want to be sure my partner can see the number. "What number?"

STUDENTS: 2

Good. Next the Coach says, "Show how many." The Player holds up 2 fingers and counts, "1, 2." (Demonstrate.) "Show how many."

STUDENTS: Count fingers, "1, 2."

Nice job. Let's continue. (Practice 5, 1, 3, then 0. Make sure students start from one and count out loud each finger.)

For the number zero we hold up a fist (demonstrate) but no fingers. Why is that?

STUDENTS: - zero means none
- zero means nothing

That's right. Zero means none. So, we hold up no fingers. We hold up a fist like this. (Demonstrate.)

During PALS you and your partner are a team. If your partner makes a mistake, you should help in a nice way.

On this game board, when your partner misses a number, say, "Stop. You missed that one." You count up to that number and hold up the correct number of fingers as you count.

Then you let the Player have a turn to do the number correctly, like you just showed him.

There are different mistakes the Player can make. Sometimes your partner may say the correct number but hold up the wrong number of fingers, like this: (say 4 and count out 3 fingers). If your partner holds up the wrong number of fingers, say “Stop. You missed that one. That number is 4: 1, 2, 3, 4 (extend a finger with each number).” Then let the Player take a turn to do the number correctly, like you just showed him.

Sometimes your partner may say the incorrect number but hold up the correct number of fingers, like this: (say 3 and count 4 fingers). If your partner says the wrong number, say “Stop. You missed that one. That number is 4: 1, 2, 3, 4 (extend a finger with each number).” Then the Coach lets the Player try again.

Sometimes your partner may not even say the number at all. She might just stare at the number and say nothing, or say “I don’t know.” In that case, the Coach still needs to help. The Coach says, “Stop. You missed that one. The number is 4: 1, 2, 3, 4.” Then the Coach says, “What number?” and gives the Player another chance.

Now let’s try some more. I’ll be the Coach. All you will be my Players.

Do the second and third row together. Make sure all students are participating. Use praise appropriately. Listen for opportunities to model correction procedures. Stop when you come to the first smiley face at the end of the third row.



Smiley Sheet

Great work. This smiley face on your game board is something special. It tells the Player to mark a smiley face on the Smiley Sheet. (Hold up Smiley Sheet Poster.) All of you will have a Smiley Sheet your team uses with each game board. Remember, you both get to be the Player each day. So, you both will get to mark smiley faces.

It works like this. The Player finds the Day 2 box on the Smiley Sheet because your game board says Day 2 in the corner. (Point to Day 2 in the corner of the poster.) Your game board will always tell you whether it’s Day 1 or 2. Look in the bottom left-hand corner of the paper (point). Then, when you come to a smiley face on your game board, the Player takes a pencil and marks a smiley face in the Day 2 box.

There is a second way to earn smiley faces. During PALS, I'll walk around the room and mark smiley faces for good PALS work. For example, if I see you being kind and helpful, I'll mark a smiley face. If I see you trying hard and doing good math work, I'll mark a smiley face.

Now, I'm going to choose someone who's done a good job as Player to come mark the smiley face. (Have a student mark a smiley face in the Day 2 box on the Smiley Sheet Poster.) **What do you do when you come to a smiley face?**

STUDENTS: You stop, and the Player marks a smiley face.

Right. Look, there's another picture here. (Point to flag.) **This flag tells PALS partners to change jobs. Whenever you see this flag, the Coach becomes the Player, and the Player becomes the Coach. Let's do that. We'll change jobs. You'll be the Coach and I'll be the Player.**

Work the next two rows with you as the Player and the students as the Coach. Pick one student to come to the front of the class and point to the numbers. Make mistakes in both numeral names and number of fingers. Help students with correction procedures as needed. Remind them to praise you occasionally.

Look, another smiley face. (Point to smiley face.) **Since I am the Player, I will mark a smiley face in the Day 2 box on the Smiley Sheet.** (Mark smiley face.)

Look, another flag. What do we do when we come to a flag?

STUDENTS: The Coach becomes the Player and the Player becomes the Coach.

Yes! The flag tells partners to change jobs. Let's do that. I'll be the Coach and you'll be the Players.

Work last two rows. Help students with correction procedures as needed.

Great job. You all did a nice job being both Coach and Player. I know you will be ready to do this activity with your partner next time we do PALS.



LESSON 1

Day 3

Students Learn

- Role of Coach
- Role of Player
- How to use game board
- Correction procedure

MATERIALS

- ☆ PALS Rules Poster
- ☆ Lesson 1 Day 3 Game Board Poster
- ☆ Smiley Sheet Poster
- ☆ Lesson 1 Folder for each pair

GUIDING GRAPHICS



Use
Poster



Use
Game Board



Pairs Work
Together



PALS Rules

Today, we're going to practice PALS again. What are our three PALS rules?

STUDENTS: - Talk only to your partner and talk only about math.
- Use a soft "PALS" voice.
- Be nice and helpful.



Lesson 1
Day 3

Good. We're going to work on the same game board we used last time. What two things does the Coach say?

STUDENTS: - What number?
- Show how many.

Great. What does the Player do?

STUDENTS: Says the number. Hold up fingers and counts.

Who can remember what we do if the number is zero?

STUDENTS: -You hold up a fist.
-You don't hold up any fingers.

That's right. Zero means none; so, we hold up a fist with no fingers.
(Demonstrate.) **Let's see if all of you can show me what to do if the number is zero.**

STUDENTS: (Hold up fist.)

Sometimes your partner might make a mistake. It is important to remember to help your partner if she makes a mistake. Let's pretend your partner made a mistake on this one. (Point to 4 on poster.) **Let's say for the number 4, your partner said 5. How might you correct your partner?**

STUDENTS: Stop. You missed that one. That number is 4: 1, 2, 3, 4 (extend a finger with each number).

Practice as many examples as necessary until students can do this independently.

I am now going to choose some PALS partners to come up to the front of the class and show us how to do the activity. (Choose students that you think can model correct procedure.)

Now, you're ready to do work with your PALS partner. First, I'll tell you who your PALS partner is. Then I'll tell you if you'll be the Coach first or the Player first and where you and your partner should sit.

If you're the Coach first, I'll call your name and ask you to come to the front of the class to get your PALS folder. Players, you get a pencil.

It's important to remember not to write on the folders or game boards unless I tell you to. When we're done with PALS today, I'll collect your folders. Next time we work on PALS, you may get a different folder.

Tell the students the name of their partner using the Student Assignment Chart. Tell one partner to be Coach first and the other to be Player first. Tell each pair where to sit. Call the Coaches to the front of the class and hand them their PALS folder. Remind Players to get a pencil. When all pairs are seated, begin instructions.

First, Coaches open your folder. On one side of your folder, it says “New.” (Demonstrate.) On the other side, it says “Old.” (Demonstrate.) The materials you need for the day will be on the “New” side. You will put your finished work on the “Old” side.

Coaches, go to the “New” side. Take out the Smiley Sheet and the Day 3 game board. These are the materials you need for today. The game board says “Day 3” right here. (Point to “Day 3” on poster.) Place these materials between you and your partner.

Players, remember when you come to a smiley face on your game board, mark a smiley face on your Smiley Sheet in the Day 3 box. Be sure to switch roles when you come to a flag. If you finish the game board before PALS time is over, you and your partner may start again at the top of the game board. You may begin.



Lesson 1
Day 3

Walk around the room and help pairs do the PALS activity correctly. Give smiley faces for good PALS behavior. (e.g., making appropriate corrections, adhering to PALS rules, following PALS procedures.) Allow them to practice together for the rest of the PALS session. When you see that most of the students have come to the flag, you may want to remind them to switch jobs.

You’re finished with your PALS Day 3 game board. So, put the game board on the “Old” side of your folder. Place the Smiley Sheet on the “New” side of your folder for next time.



LESSON 2

Students Learn

- Numerals
- To represent numerals with their fingers

MATERIALS

- ☆ PALS Rules Poster
- ☆ Lesson 2 Day 1 Game Board Poster
- ☆ Smiley Sheet Poster
- ☆ Lesson 2 Folder for each pair

GUIDING GRAPHICS



Use
Poster



Use
Game Board



Pairs Work
Together



PALS Rules

Today, we're going to practice PALS again. What are our three PALS rules?

STUDENTS: - Talk only to your partner and talk only about math.
- Use a soft "PALS" voice.
- Be nice and helpful.



Lesson 2
Day 1

Good. We're going to work on the same game board we used last time. What two things does the Coach say?

STUDENTS: "What number?" and "Show how many."

Great. What does the Player do?

STUDENTS: Says the number. Hold up fingers and counts.

What do we do if the number is zero?

STUDENTS: - You hold up a fist.
- You don't hold up any fingers.

That's right. Zero means none; so, we hold up a fist with no fingers.
(Demonstrate.) **Let's see if you all can show me what do if the number is 0?**

STUDENTS: (Hold up fist.)

Good job. Let's try the first row. I'll be Coach. You'll be the Players.

Do first row. Make sure all students are participating. Use praise appropriately. Listen for opportunities to model correction procedures. Stop when you get to the number 10.

Look, the next number is 10. For 10, we use all of our fingers. We think of 10 as a bundle of fingers. When we come to 10, we quickly "flash" all of our fingers and say, "10."(Demonstrate, allow students to practice showing 10.) **Let's try that together. "What number?"** (Point to 10.)

STUDENTS: 10.

"Show how many."

STUDENTS: Flash 10 fingers and say "10."

Good job. It's also important to remember to help your partner if she makes a mistake. Let's pretend your partner made a mistake. Let's say for the number 4, (point to 4 on poster) your partner said 5. How should you correct your partner?

STUDENTS: Stop. You missed that one. That number is 4: 1, 2, 3, 4 (extend a finger with each number).

That's right. The Coach says, "Stop. You missed that one. That number is 4: 1, 2, 3, 4." The the Coach lets the Player try the number again.

Great job. Let's practice some more. I'll be the Coach. All of you will be the Players.

Listen for opportunities to model correction procedures.

You're doing a great job. What do you do when you come to a smiley face?

STUDENTS: Mark a smiley face on the Smiley Sheet.

That's right. The Player marks a smiley on the Smiley Sheet like this.

(Demonstrate.)

What do you do when you see the flag?

STUDENTS: We switch jobs. If we were the Coach, we become the Player. If we were the Player, we become the Coach.

Very good. Let's change jobs. You'll be the Coach, and I'll be the Player.

Go through the poster until you feel the students understand. Make mistakes in both numeral names and number of fingers. Help students with questions and correction procedures as needed. Remind them to praise you occasionally.

You've been doing such a great job, I am now going to choose some PALS partners to come up to the front of the class and show us how to do the activity.

Choose students that you think can model the correct procedure.

Now, you're ready to do work with your PALS partner. I'll call out each PALS pair and tell you who is Coach first and who is Player first. If you're the Coach, please come to the front of the class to get your PALS folder. Players, get a pencil. Then, sit down with your PALS partner and put your folder down in front of you. Do not open your folders or use your pencils. Please wait for me to tell you what to do next.

It's important to remember not to write on the folders or game boards unless I tell you to. When we're done with PALS today, I'll collect your folders.

Tell students the name of their partner. Ask one partner to be Coach first and the other to be Player first. Tell each pair where to sit. Call the Coaches to the front of the class and hand them their PALS folder. Remind Players to get a pencil. When all pairs are seated, begin instructions.

There's one more thing you need to know about this game board. Look up here, at the bottom left-hand corner. (Point to corner.) It says "Lesson 2 Day 1." In your folder, you'll find your game board on the "New" side of your folder. Open your folder and find the Smiley Sheet and game board that has "Lesson 2 Day 1" in this corner.

Good. Now, Coaches make sure that the game board says, "Day 1." (Point to "Lesson 2 Day 1" on poster.) Players, remember when you come to a smiley face on your game board, mark a smiley face on your Smiley Sheet in the Day 1 box. Be sure to switch roles when you come to a flag. You may begin.



Lesson 2
Day 1

*Walk around the room awarding smiley faces to PALS pairs.
Allow students to work on the activity for the remainder of the PALS activity time.
Be sure that everyone has had the chance to be both Player and Coach.*

You're finished with your PALS Day 1 game board. So, put the game boards on the "Old" side of your folder. Place the Smiley Sheet on the "New" side of your folder for next time.



LESSON 11

Students Learn

- Numerals
- Concepts of addition
- Mathematics symbols: + and =.

MATERIALS

- ☆ PALS Rules Poster
- ☆ Lesson 11 Day 1 Game Board Poster
- ☆ Lesson 11 Folder (for each pair)

GUIDING GRAPHICS



Use
Poster



Use
Game Board



Pairs Work
Together



PALS Rules

Let's review the three PALS rules. (Read PALS rules aloud with class.)

This sign, “+” (make the “+” sign on the board) is called a plus sign. A plus sign means we add. We start with a number. Then we add more to that number. What does a plus sign mean?

STUDENTS: -add
-some more
-plus

Right. (Write $5 + 3 = 8$ on the board.) **Look at this: 5 plus 3 equals 8. The first number tells me to start with 5. Next, I see the plus sign (point to “+” sign). The plus sign tells me to add. Then I see 3 (point to the 3). So, I add 3 more. I start with 5. Then, I add 3 more (show with fingers). How many do I have now?**

STUDENTS: 8.

Very nice. Let's try another one. (Write $6 + 2 = 8$ on the board.) **What number do I start with?**

STUDENTS: 6.

Next, I see the plus sign (point to "+" sign). **What does this sign tell me to do?**

STUDENTS: Add.

Great. How many do I add? (Point to 2.)

STUDENTS: 2.

So, I start with 6. Then I add 2 more. (Show with fingers.) **How many do I have now?**

STUDENTS: 8.



Lesson 11
Day 1

That's right. For our game board today, you'll use the plus sign. Today's game board looks like this. (Hold up Lesson 11 poster.) **Two clues tell you to add.**

First, the plus sign (point to poster) **tells you to add.**

Second, there are more objects at the end of the problem than at the beginning. This tells you to add. (Point to poster.)

Now, let's see how to use today's game board. The Coach asks, "How many do you start with?" (Point to the first part of problem.) **The Player counts and writes the number in the box. Let's try that. I'll be the Coach and you'll all be my Players. "How many do you start with?"**

STUDENTS: 4 turtles.

(Write 4 in the first box.) **Next, the Coach asks, "How many do you add or take away?" The plus sign tells you to add. Also, you know to add because there are more turtles at the end than in the beginning.**

How many turtles do you add?

STUDENTS: 2 turtles.

Yes. We added 2 turtles. So, we write “2” in the box under the 2 turtles. (Write 2.) The Coach then asks, “Now how many?” We count how many are at the end. That’s our answer. We write our answer in the last box. (Point to poster and write 6.) The fun begins when the Coach says, “Tell the story.” Then the Player makes up a story.

My story might be this. “There were 4 turtles sunbathing on a log. 2 more turtles came out of the water and joined them. Then, there were 6 turtles sunbathing on a log.” Last, the Coach says, “Read it.” Let’s all read the problem together.

STUDENTS: 4 plus 2 equals 6.

Let’s do the next problem. I’ll be the Coach and you’ll all be the Players. “How many do you start with?”

STUDENTS: 2 camels.

(Write 2 in the first box.) **“How many do you add or take away?”**

STUDENTS: Add 3 camels.

(Write 3.) **How did you know that some camels were added?**

STUDENTS: -There are more camels at the end than in the beginning.
-There is a plus sign.

“Now how many?”

STUDENTS: 5 camels.

(Write 5.) **“Tell the story.”** (Pick a student to come to the front and tell a story about the camels.) **Nice job. Who can come up with a different story about the camels? Remember, you can make up any story you want.**

Good job. Last, the Coach says, “Read it.” Let’s all read the problem together.

STUDENTS: 2 plus 3 equals 5.

Let’s try some more problems. I’ll still be the Coach, and I’ll call on someone to be the Player.

*Pick students to come to the front and practice.
Continue until you feel students are comfortable with the activity.*

Remember, if your partner makes a mistake, correct him. When your partner makes a mistake, say, “Stop. You missed that one.” Point to the mistake and ask the Player to “Count again.”

Watch your Player carefully as he works through the problem. There are a lot of different places where the Player could make a mistake. Watch me do this problem (point to the third problem with the dogs.) **Watch carefully. If you see me make a mistake, say, “Stop. You missed that one.”**

Let’s see. I start with 4. (Write 5 in the first box. Students should say, “Stop. You missed that one.”) **You caught me. If the Player makes a mistake writing the number, stop him. Ask him again, “How many do you start with?” Ask him to count the dogs. Then ask him to fix it so he writes 4 in the box.** (Demonstrate by erasing the 5 and writing 4 in the box.)

Let’s continue. Watch to see if I make a mistake. Next, I add 2 dogs. (Students should say, “Stop. You missed that one.”) **You caught me again. Ask the Player, “How many do you add?” Ask the Player to again count the dogs. Then ask him to write 3 in the second box.** (Demonstrate by writing 3 in the second box.)

I’m going to keep working on this problem. Watch, the Coach asks, “Now how many?” Let’s see now, I have 6 dogs. (Students should say, “Stop. You missed that one.”) **You caught me again. The Coach asks again, “Now how many?” and the Player counts the dogs.** (Demonstrate by counting the 7 dogs.)

Next the Coach asks, “Tell the story.” Here’s my story. “There were 4 dogs looking for bones. Then, 3 more dogs joined them to look for bones. Now there are 7 dogs looking for bones.” Finally, the Coach asks, “Read it.” Let’s all read it together.

STUDENTS: 4 plus 3 equals 7.

Remember, it’s important not to tell the Player the correct answer or do the work for him. Instead, help him find the correct answer.

Now let’s do a few more problems with me as the Coach and all of you as the Player.

*Practice a few problems, then switch roles. Practice a few problems making mistakes.
Be sure students use correction procedure appropriately.
Finally, call up PALS pairs to demonstrate the activity until all students understand.*

Before we break into our PALS partners, let's review the Coach's words.

Echo read the Coach's words with the entire class.

Good job. Now, I think you're ready to do this activity with your PALS partners.

*Call up PALS partners and give the folders to the Coaches.
Remind the Players to get a pencil. Tell each PALS pair where to sit.*

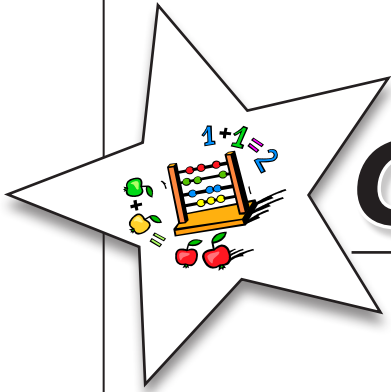
Coaches, take out the Smiley Sheet and the Day 1A and Day 1B game boards from the "New" side of your folder. When you come to a smiley face, remember to mark a smiley on the Day 1 box. When you get to the flag, remember to switch roles. You may begin.



Lesson 11
Day 1

*Walk around the room awarding smiley faces to PALS pairs.
Allow students to work on the activity for the remainder of the PALS activity time.
Be sure that everyone has had the chance to be both Player and Coach.*

You're finished with your PALS Day 1A and Day 1B game boards. So, put the game boards on the "Old" side of your folder. Place the Smiley Sheet on the "New" side of your folder for next time.



GAME BOARDS

What
number?

?

Show
how
many.



Lesson 1
Day 2

2

5

1

3

0

4

1

0

2



2

0

4

3

5

4

5

0

1



0

1

5

3

2

3

5

0

2



What
number?

?

Show
how
many.



3

4

1

0

6

8

5

0

7



2

0

5

9

3

7

5

0

1



8

2

7

9

3

3

5

0

2



What
number?

?

Show
how
many.



5

4

8

0

10

4

9

0

10



9

0

10

4

3

10

5

0

1



8

2

10

9

3

7

4

0

10



What
number?

?

Show
how
many.



7

1

5

0

10

6

10

8

0



1

10

0

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3

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How many
do you
start with?

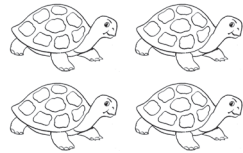
How many
do you
add or take
away?

Now how
many?

Tell the
story.

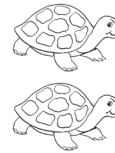


Read it.



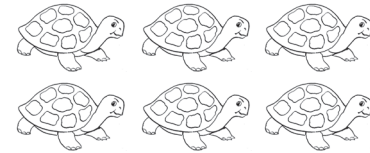
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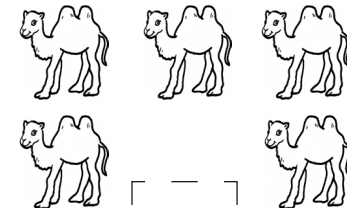
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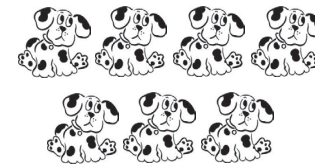
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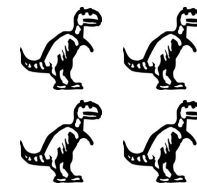
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Lesson 11
Day 1A

How many
do you
start with?

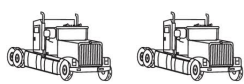
How many
do you
add or take
away?

Now how
many?

Tell the
story.



Read it.



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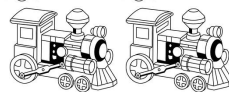


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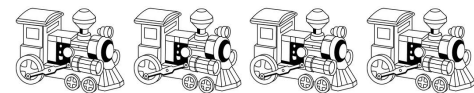
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Lesson 11
Day 1B



**How many
do you
start with?**

**How many
do you
add or take
away?**

**Now how
many?**

**Tell the
story.**

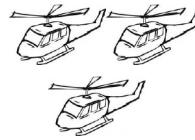


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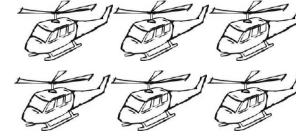
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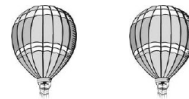


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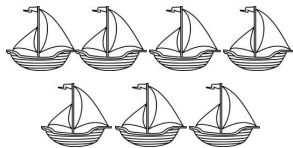


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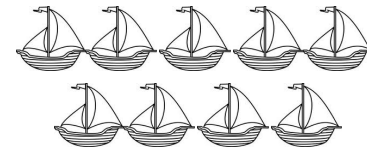
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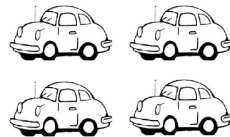


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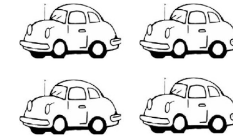
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How many
do you
start with?

How many
do you
add or take
away?

Now how
many?

Tell the
story.



Read it.



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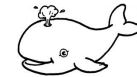
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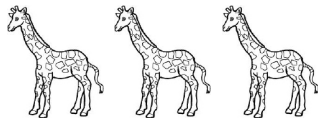


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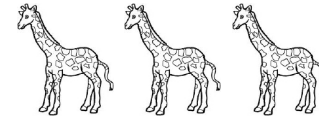


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Lesson 11
Day 2B





MANIPULATIVES



MANIPULATIVES

Before preparing the manipulatives, determine the number of student pairs because the number of pairs determines the number of manipulatives you will make.

* A template is included in the manual.

***Student Assignment Chart**

This chart is used to write the names of the student pairs. You need a new assignment chart every few weeks.

***PALS Rules - Lessons 1-16**

A poster-size copy of the PALS rules should be made to hang in the classroom. It might be helpful to laminate the Rules poster.

***Smiley Sheet - Lessons 1-16**

Each week, student pairs use a new Smiley Sheet. Each week, you need enough copies of the Smiley Sheet for each pair. Some teachers laminate the Smiley Sheet for use week after week.

- Example: 10 student pairs $\times$ 16 weeks of PALS = 160 Smiley Sheet copies

***Teacher Posters - Lessons 1-16**

During each teacher-directed lesson, you need a copy of the student game board to model the activity. These game boards can be enlarged on a 11" by 17" sheet of paper, or they can be displayed via projector.

Student Folders

All of the PALS materials for each pair will be kept in a two-pocket folder. The left-hand side of the folder should be marked "New" and the right-hand side of the folder should be marked "Old." The folder will be filled on the "New" side with the new game boards and Smiley Sheet at the beginning of each week. Once the students have finished each game board, they will place it on the "Old" side of the folder. Each pair in the classroom will need their own folder. Folders can be purchased at any office supply store.

- Example: 10 student pairs = 10 folders

***Teacher Number Line - Lessons 7, 8, 9**

The Teacher Number Line is used during teacher-directed lessons. It is used specifically in three lessons, but it may be helpful to use with other lessons. This number line can also be enlarged and laminated.

***Student Number Line - Lesson 10**

Each student pair needs a Student Number Line. The number line is used specifically in one lesson, but students may find it helpful to use it with other lessons. It may be helpful to copy the number line on card stock or laminate. Students use the 0-10 number line. Other number lines are included (0-20, 0-50, 0-100) if students are using the Challenge Game Boards with larger number increments.

- Example: 10 student pairs = 10 student (0-10) number lines

Clothespins - Lesson 10

Each student pair needs a clothespin to be used with the number line listed above. Clothespins can be purchased at a local grocery store.

- Example: 10 student pairs = 10 clothespins

***Bean Sheet - Lessons 7, 8, 9**

Each pair needs a copy of the Bean Sheet. It might be helpful to copy onto card stock or laminate.

- Example: 10 student pairs = 10 Bean Sheet papers

Beans - Lessons 7, 8, 9, 14, 15, 16

Each student pair needs a plastic bag with approximately 12-15 beans. These beans are used with the Bean Sheet and Bean Pot and Circle Sheet listed below. Kidney beans are a good-size bean for students to use and can be purchased from a local grocery store. Also purchase small plastic bags to hold the beans.

- Example: 10 student pairs $\times$ 15 beans = 150 beans, 10 baggies

***Spinners - Lesson 9**

Each student pair needs a copy of the Spinner with a plastic spinner inserted in the middle. It might be helpful to copy the Spinner on card stock or laminate. Plastic spinners can be purchased at local teacher supply stores or an arts and crafts store.

- Example: 10 student pairs = 10 spinners

***Bean Pot and Circle Sheet - Lessons 14, 15, 16**

Each student pair needs a copy of the Bean Pot and Circle. It might be helpful to copy the paper on card stock or laminate it.

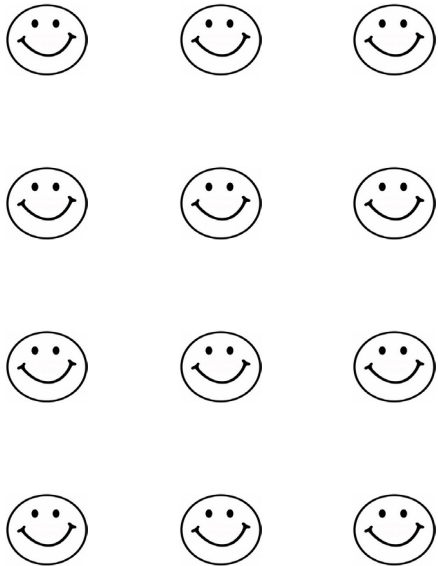
- Example: 10 student pairs = 10 Bean Pot papers

PALS RULES

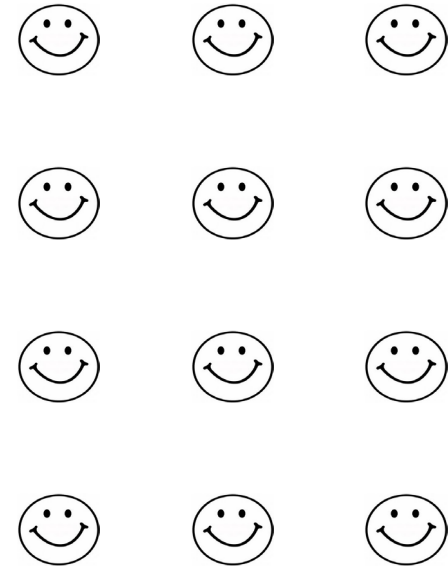
- 1. Talk only to your partner, and talk only about math.**
- 2. Use a soft PALS voice.**
- 3. Be nice and helpful.**

Smiley Sheet

Day 1

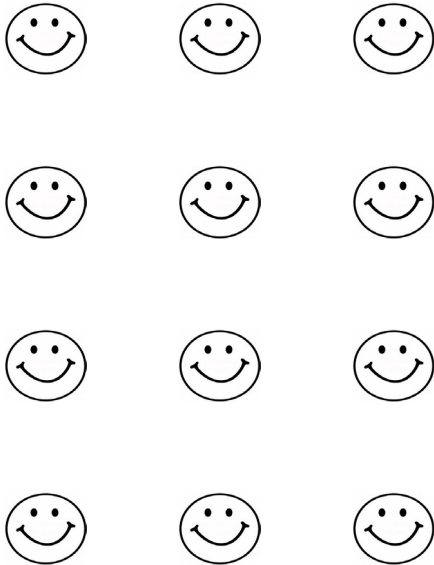


Day 2

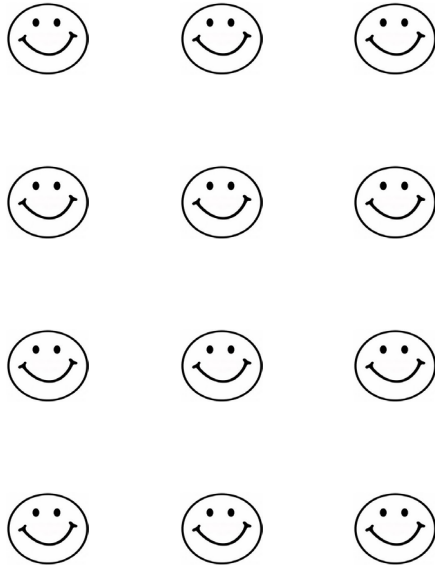


Smiley Sheet

Day 1



Day 2



Day 3

