Sort, Count and Graph

Unit 3 Overview: 8 lessons

Children sort things by one rule (size, color or kind), find the one that does not belong, sort and count each group, and find the group with the most and the fewest. Sorting needs only counting to 10, so it gives the counting of Units 1 and 2 something to count. Sort real things first (toys, buttons, snacks), then pictures, and read every question aloud. Lessons 3.5 to 3.8 (reading and making picture graphs, asking a question and counting the answers, and reading a T-chart) are for the states that teach them in Kindergarten.

THE UNIT, DAY BY DAY

Day 1	**Pre-Check**	What children already know, before the first lesson.
Day 2	**3.1** Sort by one rule	I can sort things by one rule.
Day 3	**3.2** Which one does not belong?	I can find the one that does not belong.
Day 4	**3.3** Sort, then count each group	I can sort things and count each group.
Day 5	**3.4** Which group has the most?	I can find the group with the most and the fewest.
Day 6	**3.5** Read a picture graph ★	I can read a picture graph.
Day 7	**3.6** Make a picture graph ★	I can make a picture graph.
Day 8	**3.7** Collect the answers ★	I can count the answers to a question.
Day 9	**3.8** Read a T-chart ★	I can read a T-chart.
Day 10	**Unit Review**	The review, to go over together.
Day 11	**Unit Test**	Form A, read aloud to small groups; Form B (other pictures and numbers) is for a retest.

★ Taught in Kindergarten in some states. Skip these lessons if yours teaches them in another grade; animalmath.com/standards shows your state's list.

GET READY FOR THE UNIT

- A sorting tub for each table: bears or buttons in 3 colors, big and small blocks, toy animals and cars
- Paper plates or yarn circles for groups, each with a picture label
- Snap cubes for towers, and number cards 0 to 10
- A floor graph (a tape grid on the rug) and sticky notes
- Chart paper, crayons, glue sticks and child scissors

HOW EACH LESSON GOES

1. Warm up (5 min)
2. Teach (10 min)
3. Try it together (5 min)
4. Practice (10 min)
5. Exit ticket (5 min): a quick check on the lesson.

Each lesson page ends with the Animal Math sheets, makers, tools and quizzes for it. "Sheet 3" is the third worksheet of a pack; a color pack prints each sheet again in black and white.

CHECKING AS YOU GO

PRINTABLE **Pre-Check**: Day 1, with a key

PRINTABLE **Unit Review**: the day before the test

EXIT TICKET **Exit Tickets**: one a lesson, two to a page

PRINTABLE **Unit Test**: Forms A and B, with keys

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Sort, Count and Graph

Lesson 3.1: Sort by one rule

GOAL Children sort things into groups by one rule, such as color, size or what kind of thing it is, and say the rule.

I can sort things by one rule.

About 35 minutes

THE LESSON

1. **Warm up** (5 min) Sort the class: everyone with laces on their shoes stands on one side of the rug, everyone else on the other side. Then sort again by a new rule, such as long sleeves or short.
2. **Teach** (10 min) Spill a bowl of toys on the rug. Hold up two plates and say the rule: big or small. Sort a few, thinking aloud. Then mix them up and sort the same toys another way: animals or cars.

   Say: "My rule is big or small. This one is big, so it goes here."
3. **Try it together** (5 min) Each child sorts a handful of bears onto two plates by a rule you call: first by color, then by size. Partners check each other's plates and say the rule.
4. **Practice** (10 min) Children draw a line from each animal to the sky, the water or the land on sheet 1 of Sort the Animals, and circle how many legs on sheet 3. Then they sort a cup of buttons by a rule they choose and tell a partner the rule.
5. **Exit ticket** (5 min) Read **Exit Ticket 3.1** aloud, one question at a time. Children answer, then circle a face as you read the "I can" line. In the second question, check that every picture has one line, to Food or to Toys, and none has two.

Need help? Sort by color first, with two colors only and a picture label on each plate.

Ready for more? Cut out shapes and glue each one in its tray by its sides on sheet 2 of Shape Sort and Position Words, or sort the same things two ways.

GET READY

- Bears or buttons in 3 colors for each table
- Two paper plates for each child
- Big and small toys, and pictures of animals, food and toys

WORDS TO USE

sort: put things that are alike together

group: things that go together

rule: how we decide where each one goes

ASK

- What is your rule?
- Why does this one go here?
- Can you sort them another way?

WATCH FOR

Changes the rule partway through. Say the rule before each one: "Is it big or small?"

Puts one thing in both groups. Each thing goes in one group. Hold it up and ask the rule question again.

Makes groups with no rule. Ask "How are these alike?" and name it together.

ON ANIMAL MATH

PRINTABLE **Sort the Animals: Sorting and Classifying**: sheets 1 and 3 (where it lives; how many legs)

PRINTABLE **Shape Sort and Position Words**: sheet 2 (3 sides, 4 sides or round), for more

EXIT TICKET **Kindergarten Sort, Count and Graph Exit Tickets**: Exit Ticket 3.1

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Sort, Count and Graph

Lesson 3.2: Which one does not belong?

GOAL Children find the one thing in a group that does not belong, and say the rule that the others share.

I can find the one that does not belong.

About 35 minutes

THE LESSON

1. **Warm up** (5 min) Show three apples and a ball. The class whispers which one does not belong, then says why out loud. Try three hats and a shoe.
2. **Teach** (10 min) Pull a set of four from the bag: three cars and a spoon. Ask which one does not belong and why. Then show four bears, three small and one big: now the rule is size. Then three red blocks and a blue one.

   > **Say:** "These three are cars. The spoon is not a car, so it does not belong."

3. **Try it together** (5 min) Show more sets. Children point to the one that does not belong, then tell a partner the rule: "These are all..."
4. **Practice** (10 min) Children circle the animal that is different in each row on sheet 2 of Sort the Animals and tell a partner why. Then pairs make a set of four from the sorting tub for another pair to solve.
5. **Exit ticket** (5 min) Read **Exit Ticket 3.2** aloud, one question at a time. Children answer, then circle a face as you read the "I can" line. In the second question every picture is a penguin: the odd one out is the big one, so the rule is size, not kind.

Need help? Use sets where the odd one is very different, such as three bears and a shoe.

Ready for more? Make a set of four for a partner where the rule is hard to see, such as size or color.

GET READY

- Sets of four things where three go together (3 cars and a spoon; 3 big blocks and a small one)
- A paper bag to hide each set in

WORDS TO USE

alike: the same in some way

different: not the same

does not belong: does not fit the rule

ASK

- Which one does not belong? Why?
- How are the other three alike?

WATCH FOR

Picks the right one but cannot say why. Give the start of the sentence: "These three are all..."

Looks only at kind, not size or color. Ask "Are they all the same size? The same color?"

Picks a different one each time. Take the odd one away, show the three left, and ask how they are alike.

ON ANIMAL MATH

PRINTABLE **Sort the Animals: Sorting and Classifying**: sheet 2

EXIT TICKET **Kindergarten Sort, Count and Graph Exit Tickets**: Exit Ticket 3.2

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Sort, Count and Graph

Lesson 3.3: Sort, then count each group

GOAL Children sort a set of up to 10 things into groups, count each group and write how many. **About 35 minutes**

I can sort things and count each group.

THE LESSON

1. **Warm up** (5 min) Sort a handful of crayons into two colors on the board ledge. The class counts each group out loud together.
2. **Teach** (10 min) Spill a cup of 7 toys: cars and animals. Sort them on a mat, then count each group and put a number card under it. Then show a drawn pile of two kinds: cross off each car as you count it, then each animal.

   > **Say:** "First I sort. Then I count each group: 4 cars and 3 animals."
3. **Try it together** (5 min) Pairs sort a cup of up to 10 mixed things, count each group and put a number card under it. Then they swap cups with another pair and check.
4. **Practice** (10 min) Children cross off each toy and draw a dot in its row on sheet 1 of Collecting Data, then write how many of each. Early finishers count each kind of animal on sheet 5 of Count the Animals.
5. **Exit ticket** (5 min) Read **Exit Ticket 3.3** aloud, one question at a time. Children answer, then circle a face as you read the "I can" line. Look for crossed off pictures in each pile: a child who crosses each one off counts each kind once.

Need help? Sort and count real things before pictures, with two kinds only.

Ready for more? Sort into three or four groups and count each, as on sheet 5 of Count the Animals.

GET READY

- A cup of up to 10 mixed toys or snacks for each pair
- A sorting mat with two spaces and number cards 0 to 10 for each pair
- Crayons

WORDS TO USE

sort: put alike things together

how many in each group: count one group, then the next

cross off: mark each one as you count it

ASK

- What groups did you make?
- How many are in this group?
- How do you know you counted them all?

WATCH FOR

Counts the whole pile instead of one kind. Color or circle one kind first, then count only those.

Counts a picture twice. Cross off each picture as it is counted.

Sorts right but counts wrong. Line each group up in a row before counting.

ON ANIMAL MATH

PRINTABLE **Collecting Data: Sort, Count and Vote**: sheet 1

PRINTABLE **Count the Animals: Counting 1 to 10**: sheet 5 (four kinds of animals mixed together)

EXIT TICKET **Kindergarten Sort, Count and Graph Exit Tickets**: Exit Ticket 3.3

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Sort, Count and Graph

Lesson 3.4: Which group has the most?

GOAL Children compare sorted groups: they find the group with the most and the group with the fewest, and put the groups in order by how many.

I can find the group with the most and the fewest.

About 35 minutes

THE LESSON

1. **Warm up** (5 min) Hold up three cube towers: 2, 6 and 4 cubes. Which is tallest? Which is shortest? Count each to check.
2. **Teach** (10 min) Sort a cup of cubes by color. Snap each color into a tower and stand the towers side by side on the same line. The tallest tower has the most; the shortest has the fewest. Count each to check, then put the towers in order.

   > **Say:** "Six is the most. Two is the fewest. Two, four, six: fewest to most."

3. **Try it together** (5 min) Pairs sort a cup of cubes by color, build towers and line them up. They point to the most and the fewest and tell the class how many.
4. **Practice** (10 min) Children count each fruit, color one box for each and circle the fruit with the most on sheet 1 of My First Picture Graphs. Then they do the same for the animals on sheet 4 of Sort the Animals, and answer questions 1 and 2 on their Collecting Data sheet from lesson 3.3.
5. **Exit ticket** (5 min) Read **Exit Ticket 3.4** aloud, one question at a time. Children answer, then circle a face as you read the "I can" line. The groups sit in rows, so the longest row has the most: ask how they know, and listen for counting.

Need help? Compare two groups only, lined up one to one side by side.

Ready for more? Put three towers in order from fewest to most, then build a fourth tower that goes between two of them.

GET READY

- A cup of cubes in 3 colors for each pair
- Number cards 0 to 10

WORDS TO USE

most: the group with the biggest number

fewest: the group with the smallest number

in order: from fewest to most

ASK

- Which group has the most? How do you know?
- Which has the fewest?
- Can you put the groups in order?

WATCH FOR

Picks the group with the biggest pictures. Build a tower for each group: count, do not look at size.

Mixes up most and fewest. Most is the tallest tower; fewest is the shortest. Use both words every day.

Two groups have the same number. Good noticing: they are the same. Find the most among the others.

ON ANIMAL MATH

PRINTABLE **My First Picture Graphs**: sheet 1

PRINTABLE **Sort the Animals: Sorting and Classifying**: sheet 4

PRINTABLE **Collecting Data: Sort, Count and Vote**: sheet 1, kept from lesson 3.3 (questions 1 and 2, the most and the fewest)

EXIT TICKET **Kindergarten Sort, Count and Graph Exit Tickets**: Exit Ticket 3.4

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Sort, Count and Graph

Lesson 3.5: Read a picture graph

GOAL Children read a picture graph: each picture shows one thing, so they count a row to find how many, and find the row with the most and the fewest.

I can read a picture graph.

About 35 minutes

★ Taught in Kindergarten in some states

THE LESSON

1. **Warm up** (5 min) Children stand in three lines by the snack they like best: apples, crackers or grapes. Count each line together. That is a people graph!
2. **Teach** (10 min) Show a picture graph titled Our Pets. Read the title and name each row. Count the dogs, touching each picture. Ask which row has the most and how they can tell without counting: it is the longest.

   > **Say:** "Each picture is one pet. I count the pictures in the dog row: 5 dogs."

3. **Try it together** (5 min) Show a second graph. Children answer on their fingers: how many cats? Which row has the fewest? Then a child asks the class a question about the graph.
4. **Practice** (10 min) Children read the graphs and answer on sheets 2 and 4 of My First Picture Graphs while you read each question aloud.
5. **Exit ticket** (5 min) Read **Exit Ticket 3.5** aloud, one question at a time. Children answer, then circle a face as you read the "I can" line. For "how many carrots", watch who counts only the carrot row, touching each picture, and stops at its end.

Need help? Read a graph with two rows only, with a finger on each picture.

Ready for more? The Picture Graphs level of the Graphs and Data quiz, read together: questions that ask how many more are for 1st grade.

GET READY

- A picture graph drawn big on chart paper, with three rows of pet pictures
- Pictures of three snacks for the warm up

WORDS TO USE

picture graph: a chart where each picture shows one thing

row: pictures going across

title: the words at the top that tell what the graph is about

ASK

- What is this graph about?
- How many are in this row?
- Which has the most? The fewest?

WATCH FOR

Counts the picture at the start of the row. On some graphs the first box names the row: cover it with a finger and count the rest.

Counts two rows together. Lay a strip of paper under the row being counted.

Says the top row has the most. Ask which row is longest, then count to check.

ON ANIMAL MATH

PRINTABLE **My First Picture Graphs**: sheets 2 and 4

MAKER **Bar Graphs**: Activity Read the Graph, Number of Categories 3, Max Value on Axis 5 (bars, not pictures; one question asks how many more)

QUIZ **Graphs and Data Quiz**: the Picture Graphs level

EXIT TICKET **Kindergarten Sort, Count and Graph Exit Tickets**: Exit Ticket 3.5

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Sort, Count and Graph

Lesson 3.6: Make a picture graph

GOAL Children make a picture graph: they count each kind and put one picture, X or colored box in its row for each one, starting at the same line.

I can make a picture graph.

About 35 minutes

★ Taught in Kindergarten in some states

THE LESSON

1. **Warm up** (5 min) Children put a sticky note in a row of the floor graph to show how they got to school: walk, car or bus. Count each row together.
2. **Teach** (10 min) Show a pile of 7 animal pictures: frogs, ducks and fish. Cross off one picture at a time and draw an X in its row, starting in the first box. Then count each row and check it with the pile.

   Say: "One X for each picture. I cross it off so I don't count it twice."
3. **Try it together** (5 min) Each table gets a pile of picture cards. Children take turns putting each card in its row on a big paper graph, one card a box, then count each row together.
4. **Practice** (10 min) Children count each toy and color one box for each on sheet 3 of My First Picture Graphs, then color a box for each vote on sheet 5. Read the questions aloud.
5. **Exit ticket** (5 min) Read **Exit Ticket 3.6** aloud, one question at a time. Children answer, then circle a face as you read the "I can" line. Check that each row starts in the first box and has one X for each picture in the pile.

Need help? Make a graph with real things first: put each toy in its own box on a big paper graph.

Ready for more? Count and color the Halloween graphs on sheets 1 and 2 of Halloween Graphing; read questions 1 and 2 together.

GET READY

- The floor graph and a sticky note for each child
- A pile of picture cards (3 kinds) for each table
- Crayons

WORDS TO USE

graph: a chart that shows how many of each

one for each: one box or X for every thing

start line: where every row begins

ASK

- How many Xs go in this row? Why?
- Did you cross off each picture?
- What does your graph tell us?

WATCH FOR

Skips boxes or starts in the middle of a row. Start at the line every time, one box after another.

Counts a picture twice. Cross off each picture as its X is drawn.

Draws more Xs than pictures. Count the row and the pictures of that kind: the numbers must match.

ON ANIMAL MATH

PRINTABLE **My First Picture Graphs**: sheets 3 and 5

PRINTABLE **Halloween Graphing**: sheets 1-2 in the fall (questions 3 and 4, how many more and in all, are for 1st grade)

EXIT TICKET **Kindergarten Sort, Count and Graph Exit Tickets**: Exit Ticket 3.6

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Sort, Count and Graph

Lesson 3.7: Collect the answers

GOAL Children ask the class a question with two or three answers, collect one answer from each child, and count the answers to find which was chosen most.

I can count the answers to a question.

About 35 minutes

★ Taught in Kindergarten in some states

THE LESSON

1. **Warm up** (5 min) Ask "Apples or bananas?" Children stand by the picture of the one they like better. Count each group together.
2. **Teach** (10 min) Ask "Which pet do you like best, a cat or a dog?" Each child puts a cube on the picture of their answer while you check off names, so each child answers once. Snap each answer's cubes into a tower and count.

   > **Say:** "Each child gets one vote. We check off each name so we count each answer once."

3. **Try it together** (5 min) Children help pick a new question with two answers. Pass a cup to each table: each child drops in a cube for their answer. Count each answer's cubes together.
4. **Practice** (10 min) Children decide whether to count or to ask on sheet 2 of Collecting Data. Then each child asks 10 friends the pet question on sheet 5, coloring a circle for each friend and making a mark for each answer.
5. **Exit ticket** (5 min) Read **Exit Ticket 3.7** aloud, one question at a time. Children answer, then circle a face as you read the "I can" line. The answers are in speech bubbles: watch who checks off each bubble as they count it.

Need help? Collect answers from four friends only, with two answers to choose from.

Ready for more? Ask the class a question of your own, collect the answers on a class list, then tell what you found out.

GET READY

- Name cards or a class list to check off
- A question chart with a picture for each answer
- A cube for each child

WORDS TO USE

question: what we ask to find out

vote: choose one answer

answers: what each child chose

ASK

- What question did we ask?
- How many chose cats? How do you know?
- Did everyone answer once?

WATCH FOR

Counts one child's answer twice. Check off each name or bubble as it is counted.

Mixes up the question and the answers. Say the question first, then each answer with its picture.

Thinks the answer most children chose is the right one. Every answer is fine; the count only tells which was chosen most.

ON ANIMAL MATH

PRINTABLE **Collecting Data: Sort, Count and Vote**: sheets 2 and 5

EXIT TICKET **Kindergarten Sort, Count and Graph Exit Tickets**: Exit Ticket 3.7

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Sort, Count and Graph

Lesson 3.8: Read a T-chart

GOAL Children read a T-chart: each answer has a picture at the top and a mark under it for each vote. They count the marks on each side and say which has more.

I can read a T-chart.

About 35 minutes

★ Taught in Kindergarten in some states

THE LESSON

1. **Warm up** (5 min) Ask "Juice or milk?" Each child walks up and makes one mark under their answer on a big T-chart.
2. **Teach** (10 min) Count the marks on each side together, touching each one. Show that the fifth mark goes across the other four: it is one more mark, so the bundle is 5. Ask how many chose each and which side has more.

   > **Say:** "Each mark is one child. I count the marks under juice: 1, 2, 3, 4, 5, 6."

3. **Try it together** (5 min) Make a second T-chart with a new question. Children add their own marks, then partners count one side each and compare.
4. **Practice** (10 min) Children check off each child and make a tally mark for each vote on sheet 3 of Collecting Data, then a mark for each day's weather on sheet 4, and write how many. Read the questions aloud.
5. **Exit ticket** (5 min) Read **Exit Ticket 3.8** aloud, one question at a time. Children answer, then circle a face as you read the "I can" line. The 7 is a bundle of 5 and 2 more: watch who counts every mark, the one across the bundle too.

Need help? Count up to 5 marks on one side, touching each one, before reading both sides.

Ready for more? Read the tally marks and color the bars on a Bar Graphs maker sheet.

GET READY

- A big T-chart on chart paper with a picture answer on each side
- Markers

WORDS TO USE

T-chart: a chart shaped like a T, with one side for each answer

tally mark: one line for each answer

bundle: four lines with a fifth across them: 5

ASK

- What does each mark show?
- How many chose this one?
- Which side has more? How do you know?

WATCH FOR

Skips the mark across the bundle. It is a mark too: touch it and count it.

Counts both sides together. Cover one side of the T with a hand.

Counts the picture at the top as a mark. The picture names the side; the marks are under the line.

ON ANIMAL MATH

PRINTABLE **Collecting Data: Sort, Count and Vote**: sheets 3-4 (tally tables, read across the rows)

MAKER **Bar Graphs**: Activity Make the Graph, Number of Categories 3, Max Value on Axis 5 (one question asks how many more)

EXIT TICKET **Kindergarten Sort, Count and Graph Exit Tickets**: Exit Ticket 3.8

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