

Money and Patterns

Unit 12 Overview: 10 lessons

Students learn the four coins and what each is worth, write values with the cent sign, then count groups of coins by 1s, 5s and 10s, starting with the coin worth the most. Two lessons on money in everyday life follow (earning, needs and wants, and spending, saving and sharing), and the unit ends with repeating, growing and number patterns. The whole unit is for the states that teach money and patterns in 1st grade; it can also be spread through the year, and the coin lessons pair well with Unit 1's skip counting.

THE UNIT, DAY BY DAY

Day 1	Pre-Check	What students already know (page 1 of the test pack).
Day 2	12.1 Name the coins	I can name each coin.
Day 3	12.2 Coin values and the cent sign	I can tell what each coin is worth.
Day 4	12.3 Count pennies, nickels or dimes	I can count pennies, nickels or dimes.
Day 5	12.4 Count nickels and pennies	I can count nickels and pennies.
Day 6	12.5 Count dimes, nickels and pennies	I can count dimes, nickels and pennies.
Day 7	12.6 Earning money; needs and wants	I can tell income from a gift and needs from wants.
Day 8	12.7 Spend, save and share	I can tell spending, saving and sharing apart.
Day 9	12.8 Repeating patterns	I can continue a pattern and name it with letters.
Day 10	12.9 Growing patterns	I can draw the next step of a growing pattern.
Day 11	12.10 Number patterns that add or take away	I can continue a number pattern and find its rule.
Day 12	Unit Review	The review pages, with a tip beside every question.
Day 13	Unit Test	Form A; Form B (other numbers) is for a retest.

GET READY FOR THE UNIT

- A bag of real or play coins for each pair: about 20 pennies, 10 nickels, 10 dimes and a few quarters
- A hundreds chart for each student, in a sheet protector to write on, and the class number line
- Three clear jars or cups labeled Spend, Save and Share, and price tags for a few classroom things
- Connecting cubes or pattern blocks in three colors, crayons, whiteboards and markers

HOW EACH LESSON GOES

- 1. Warm up** (5 min)
- 2. Teach** (10 min)
- 3. Try it together** (10 min)
- 4. Practice** (15 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

EXIT TICKET

1st Grade Money and Patterns Exit Tickets: one for every lesson, four to a page

PRINTABLE

1st Grade Money and Patterns Test: the Pre-Check, the Unit Review and the Unit Test (Forms A and B), with keys

Money and Patterns

Lesson 12.1: Name the coins

GOAL Students name a penny, a nickel, a dime and a quarter from either side, using clues they can see: the color, the size and the edge.

About 45 minutes

I can name each coin.

THE LESSON

- 1 Warm up** (5 min) Pass a coin around each table. Students say one thing they notice (brown, silver, small, a face) as you list the words.
- 2 Teach** (10 min) Show the four coins heads up, smallest to biggest: dime, penny, nickel, quarter. Name each and point to a clue: the penny is the only brown coin, the dime the smallest, the nickel has a smooth edge, the quarter is the biggest. Flip each to show tails.
Say: "The penny is brown. The dime is the smallest. The quarter is the biggest. The nickel is the silver one in between."
- 3 Try it together** (10 min) Partners play Coin Clues: one hides a coin under a hand and gives a clue ("silver and the smallest"), the other names it. Then they mix heads and tails on the desk and sort them into four piles by name.
- 4 Practice** (15 min) Students match coins to names on the top half of sheet 1 of Pennies, Nickels, Dimes and Quarters (the values come next lesson), then circle coins by name and match heads to tails on sheets 2 and 4 of Identifying Coins.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.1** and circle a face beside the "I can" line. Look at the two dimes: a student who circles only one of them may not know the tails side yet.

Need help? Start with two coins that look very different, the penny and the quarter, then add the dime and the nickel one at a time.

Ready for more? Name a coin by touch alone, inside a sock or a bag, and tell which clue gave it away.

GET READY

- A penny, nickel, dime and quarter for each pair (real or play)
- Name cards for the four coins
- A hand lens, if you have one

WORDS TO USE

coin: a round piece of metal money

heads: the side of a coin with a face on it

tails: the other side, the back of the coin

ASK

- How do you know that one is a penny?
- How can you tell a dime from a nickel?
- Is this the heads side or the tails side? How do you know?

WATCH FOR

Calls the dime a nickel, or the nickel a dime.

Put them side by side: the dime is smaller and has ridges on its edge; the nickel is bigger and smooth.

Calls the penny a dime because they are close in size. Look at the color first: the penny is the only brown coin.

Knows the heads side but not the tails side.

Flip each coin slowly while the student says its name, then sort a pile of tails only.

ON ANIMAL MATH

PRINTABLE **Pennies, Nickels, Dimes and Quarters:** sheet 1, the top half

PRINTABLE **Identifying Coins:** sheets 2 and 4

TOOL **Money:** New Coins Land Mixed, then Flip All

QUIZ **Money Quiz:** the Coin Names level

EXIT TICKET **1st Grade Money and Patterns Exit Tickets:** Exit Ticket 12.1

Money and Patterns

Lesson 12.2: Coin values and the cent sign

GOAL Students tell what each coin is worth (1¢, 5¢, 10¢, 25¢), write it with the cent sign, and see that size does not tell value: the small dime is worth more than the bigger nickel.

About 45 minutes

I can tell what each coin is worth.

THE LESSON

- 1 Warm up** (5 min) Play Name It: hold up a coin, heads or tails, and the class says its name together. Go faster as they get it.
- 2 Teach** (10 min) Write 1¢ under a penny. Line up 5 pennies beside a nickel and 10 pennies beside a dime: the nickel is worth 5¢, the dime 10¢. Show that a quarter is worth 25¢. Then hold up a dime and a nickel: which is bigger, and which is worth more?
Say: "A dime is small, but it is worth 10 cents. A nickel is bigger, but it is worth only 5 cents."
- 3 Try it together** (10 min) Partners trade 5 pennies for a nickel, 10 pennies for a dime and 2 nickels for a dime. Then hold up two coins; partners point to the one worth more and write its value on a whiteboard. Include dime or nickel and dime or penny.
- 4 Practice** (15 min) Students write each coin's value on the bottom half of sheet 1 of Pennies, Nickels, Dimes and Quarters, then circle the coin worth more and put coins in order on sheet 2. Early finishers do the top half of sheet 5: how many pennies or nickels make a coin.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.2** and circle a face beside the "I can" line. Check the cent signs, and the penny or dime pair: a student who circles the penny chose by size.

Need help? Work with the penny, the nickel and the dime first, with a coin chart on the desk that shows heads, tails and the value.

Ready for more? Find two ways to make 10¢ and three ways to make 25¢ with pennies, nickels and dimes.

GET READY

- The four coins for each pair
- 25 pennies and 5 nickels a pair, to trade
- Whiteboards and markers

WORDS TO USE

cent: how we count money in coins; a penny is one cent

cent sign: ¢, written after the number: 5¢

worth: how much money a coin is

ASK

- Which is worth more, a dime or a nickel? How do you know?
- How many pennies make a nickel? A dime?
- Where do you write the cent sign?

WATCH FOR

Says the nickel is worth more because it is bigger. Line up 10 pennies beside the dime and 5 beside the nickel, and compare the rows.

Writes 5 with no cent sign, or ¢5. Say "5 cents" while writing: the number first, then the ¢.

Mixes up the values of the nickel and the dime. Keep a coin chart on the desk, each coin with its value, and say them together.

ON ANIMAL MATH

PRINTABLE

Pennies, Nickels, Dimes and Quarters: sheets 1-2, and the top half of sheet 5

TOOL

Money: Show Values on Coins

QUIZ

Money Quiz: the Coin Values level

EXIT TICKET

1st Grade Money and Patterns Exit Tickets: Exit Ticket 12.2

Money and Patterns

Lesson 12.3: Count pennies, nickels or dimes

GOAL Students count a group of one kind of coin, pennies by 1s, nickels by 5s and dimes by 10s, touching each coin, and write the total with the cent sign. **About 45 minutes**

I can count pennies, nickels or dimes.

THE LESSON

- 1 Warm up** (5 min) Skip count together on the hundreds chart: by 10s to 100, then by 5s to 50. Clap on each number.
- 2 Teach** (10 min) Lay 4 dimes in a row. Touch each one and count by 10s: 10, 20, 30, 40, so 40¢. Do the same with 6 nickels by 5s (5, 10, 15, 20, 25, 30, so 30¢), then 8 pennies by 1s. Write the count under each coin.
Say: “Each dime is 10 cents, so I count by 10s. Each nickel is 5 cents, so I count by 5s.”
- 3 Try it together** (10 min) Partners grab a handful of one kind of coin, count it touching each coin and write the total with the ¢; the partner counts again to check. Make sure each pair counts 7 nickels (35¢) and 9 dimes (90¢).
- 4 Practice** (15 min) Students count rows of one kind of coin on sheet 3 of Pennies, Nickels, Dimes and Quarters, writing the count under each coin, then count pennies on sheets 1 and 2 of Counting Pennies.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.3** and circle a face beside the “I can” line. Look at the nickels: a student who writes 5 counted coins, not cents.

Need help? Count dimes first, by 10s with a finger on the hundreds chart, then nickels by 5s the same way, then pennies.

Ready for more? Find how many nickels make 50¢, or count a row of 10 dimes and find that it makes 100¢, one dollar.

GET READY

- A cup for each pair with up to 20 pennies, 10 nickels and 9 dimes
- A hundreds chart for each student
- Whiteboards and markers

WORDS TO USE

skip count: count by jumping over numbers, like 5, 10, 15

total: how much money there is in all

ASK

- Why do you count the dimes by 10s?
- You have 6 nickels. What number will you say last?
- How many cents are 3 dimes?

WATCH FOR

Counts nickels by 1s: 1, 2, 3, 4, 5. Point to the coin chart: each nickel is 5¢. Count by 5s on the hundreds chart, touching each coin.

Skips a coin or counts one twice. Push each coin aside as it is counted, or write the count under it.

Writes the number of coins instead of the cents. Ask two questions: how many coins? How many cents? Write both.

ON ANIMAL MATH

PRINTABLE

Pennies, Nickels, Dimes and Quarters: sheet 3

PRINTABLE

Counting Pennies: sheets 1-2

MAKER

Counting Money: Coin Types Pennies Only, Max Total Value 25¢

TOOL

Hundreds Chart: Skip Count Highlight, 5s or 10s

QUIZ

Money Quiz: the Count Coins level

EXIT TICKET

1st Grade Money and Patterns Exit Tickets: Exit Ticket 12.3

Money and Patterns

Lesson 12.4: Count nickels and pennies

GOAL Students count a group of nickels and pennies by putting the nickels first, counting them by 5s, then counting on the pennies by 1s (5, 10, 15, 16, 17).

About 45 minutes

I can count nickels and pennies.

THE LESSON

- 1 Warm up** (5 min) Count by 5s to 50 together, then count on by 1s from 15: 16, 17, 18, 19, 20.
- 2 Teach** (10 min) Lay out 3 nickels and 4 pennies, mixed. Move the nickels to the front: they are worth the most. Count 5, 10, 15, then switch to 1s: 16, 17, 18, 19. Write 19¢. Then show the mix up: counting every coin by 5s gives 35, too much.
| Say: “Nickels first, by 5s. Then I keep going by 1s for the pennies.”
- 3 Try it together** (10 min) Partners grab nickels and pennies, line the nickels up first and count on, writing the count under each coin. Include more pennies than nickels (2 nickels and 6 pennies, 16¢) and 5 nickels (25¢ before the pennies).
- 4 Practice** (15 min) Students count the groups on sheets 1 and 2 of Counting Pennies & Nickels. The coins are mixed up there, so they mark the nickels first. Early finishers show 23¢ two ways.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.4** and circle a face beside the “I can” line. In the count on row, look at the first penny: 16 is right; 20 means the student kept counting by 5s.

Need help? Use 1 or 2 nickels and a few pennies, with the count written under each coin.

Ready for more? Count groups with up to 9 nickels, or find the nickels and pennies to pay a price tag of 37¢.

GET READY

- 6 nickels and 9 pennies for each pair
- A hundreds chart for each student
- Whiteboards and markers

WORDS TO USE

worth the most: the coin with the biggest value; count it first

count on: keep counting from the number you are at

ASK

- Which coins do you count first? Why?
- Where do you switch from 5s to 1s?
- What is 15¢ and one more penny?

WATCH FOR

Keeps counting by 5s on the pennies: 15, 20, 25. Touch a penny: what is it worth? Say “switch” at the first penny.

Starts with the pennies and gets lost changing to 5s. Push the nickels to the front of the row before counting.

Counts the coins and writes 7¢ for 7 coins. Ask what each coin is worth, then count the cents together.

ON ANIMAL MATH

PRINTABLE

Counting Pennies & Nickels: sheets 1-2

PRINTABLE

Pennies, Nickels, Dimes and Quarters: sheet 4, problem 3 (nickels and pennies)

MAKER

Counting Money: Coin Types Pennies & Nickels, Max Total Value 50¢

TOOL

Money: Sort by Coin, then Line Up and Count

QUIZ

Money Quiz: the Count Coins level

EXIT TICKET

1st Grade Money and Patterns Exit Tickets: Exit Ticket 12.4



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Money and Patterns

Lesson 12.5: Count dimes, nickels and pennies

GOAL Students count a group of dimes, nickels and pennies up to 99¢: dimes first by 10s, then nickels by 5s, then pennies by 1s, changing how they count when the coin changes.
I can count dimes, nickels and pennies.

About 45 minutes

THE LESSON

- 1 Warm up** (5 min) Start at 20 and count on by 5s to 40; start at 35 and count on by 1s to 40. Then try other starting numbers.
- 2 Teach** (10 min) Lay out 2 dimes, 1 nickel and 3 pennies, mixed. Line them up, dimes first, and count: 10, 20, then 25, then 26, 27, 28. Write 28¢. Then count 1 dime, 3 nickels and 2 pennies: 10, 15, 20, 25, 26, 27.
Say: "Dimes by 10s, nickels by 5s, pennies by 1s. I change how I count when the coin changes."
- 3 Try it together** (10 min) Partners grab a handful of coins, line them up and count on, writing the count under each coin. Then they play Store with the price tags, paying with exact coins. Include one past 50 (4 dimes, 3 nickels and 4 pennies, 59¢).
- 4 Practice** (15 min) Students count the groups on sheet 4 of Pennies, Nickels, Dimes and Quarters, starting with the coin worth the most, then circle the coins that pay each price on sheet 5.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.5** and circle a face beside the "I can" line. In the count on row, look at the first nickel: 25 is right; 21 means it was counted as a penny, 30 as a dime.

Need help? Use dimes and pennies only (10, 20, 21, 22), then add one nickel.

Ready for more? Make 47¢ two ways, or pay a price tag with the fewest dimes, nickels and pennies.

GET READY

- 5 dimes, 4 nickels and 9 pennies a pair
- Price tags up to 50¢
- Whiteboards and markers

WORDS TO USE

line up: put the coins in a row, the ones worth the most first

count on: keep counting from where you are: by 10s, then 5s, then 1s

ASK

- Why do we line up the dimes first?
- After 30, what do you say for a nickel?
- Can you make the same amount with other coins?

WATCH FOR

Keeps counting by 10s after the dimes. Stop at the first nickel: what is it worth? Write +5 above it and +1 above each penny.

Starts the pennies again from 1: 10, 20, 25, 1, 2. Say the last number again before going on: 25, 26, 27.

Counts the coins in the order they lie. Line them up first: dimes, then nickels, then pennies.

ON ANIMAL MATH

PRINTABLE

Pennies, Nickels, Dimes and Quarters: sheets 4-5

MAKER

Counting Money: Coin Types Pennies, Nickels & Dimes, Max Total Value \$1.00

TOOL

Money: Make an Amount On

QUIZ

Money Quiz: the Count Coins level

EXIT TICKET

1st Grade Money and Patterns Exit Tickets: Exit Ticket 12.5



Money and Patterns

Lesson 12.6: Earning money; needs and wants

GOAL Students learn that income is money earned by doing work, not a gift, and that money pays for needs (what we must have to live and be safe) before wants.

About 45 minutes

I can tell income from a gift and needs from wants.

THE LESSON

- 1 Warm up** (5 min) Ask what jobs grown ups do and what chores students do at home. List them on the board.
- 2 Teach** (10 min) Tell two stories: Mia walks a dog and gets \$2; Grandma gives Mia \$5. Which money did she earn? Only the dog walking is income. Then sort picture cards (bread, a coat, a video game) into needs and wants, and say why: you can live without a video game.
Say: "Income is money you earn by working. A gift is nice, but it is not income."
- 3 Try it together** (10 min) Students stand in the Needs or the Wants hoop as you show each card: water, a lollipop, medicine, a bike, shoes, a teddy bear. Talk about the hard ones: shoes are a need, but a second pair just for fun is a want.
- 4 Practice** (15 min) Students circle earned or gift on sheet 2 of Jobs and Earning Money and find the income on sheet 5, then circle need or want on sheet 1 of Wants and Needs. Early finishers do the cut and glue sort on sheet 2.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.6** and circle a face beside the "I can" line. Watch for a student who circles the gift because it is more money: the \$5 is more, but the \$3 was earned.

Need help? Sort real things (an apple, a toy car, a sock, a sticker) into needs and wants before the pictures.

Ready for more? Buy the need first and find the money left on sheet 4 of Wants and Needs.

GET READY

- Pictures of jobs and chores (raking leaves, walking a dog, washing a car)
- Picture cards of needs and wants (food, water, a coat, a toy, candy)
- Two hoops on the floor: Needs and Wants

WORDS TO USE

income: money you earn by doing work

need: what you must have to live and be safe

want: nice to have, but you can live without it

ASK

- Did Mia earn that money, or was it a gift? How do you know?
- Could you live without it? Need or want?
- Why do we pay for needs first?

WATCH FOR

Calls all money income, gifts too. Ask: did they do work for it? Only money earned by working is income.

Calls everything they like a need. Ask: could you live and be safe without it? Then it is a want.

Picks the bigger amount as the income. Cover the amounts and read the stories again: who did a job?

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PRINTABLE

Jobs and Earning Money: sheets 2 and 5

PRINTABLE

Wants and Needs: sheets 1-2, and sheet 4 for more

EXIT TICKET

1st Grade Money and Patterns Exit Tickets: Exit Ticket 12.6



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Money and Patterns

Lesson 12.7: Spend, save and share

GOAL Students tell the three things we do with money apart: spend it on something now, save it to use later, or share it to help others, and see that saving a little at a time adds up.

About 45 minutes

I can tell spending, saving and sharing apart.

THE LESSON

- 1 Warm up** (5 min) Ask: if you had \$5, what would you do with it? Write a few answers on the board in three groups (spend, save, share) without saying why yet.
- 2 Teach** (10 min) Show the three jars. Read short stories and drop a coin in the jar that fits: Leo buys a ball (spend), Kim keeps her money for a bike (save), Ben gives \$1 to the animal shelter (share). Then show saving over time: save 10¢ a day for 5 days and count 10, 20, 30, 40, 50.
Say: "Spending is buying now. Saving is keeping it for later. Sharing is giving to help someone."
- 3 Try it together** (10 min) Partners split 10 dimes among the three jars any way they like and write the plan, such as 5 to spend, 3 to save and 2 to share. They check that the parts make 10, then tell the class why they chose it.
- 4 Practice** (15 min) Students circle spend, save or share on sheet 1 of Spend, Save and Share and write the money saved each day on sheet 3. Early finishers check the plans and make their own plan for \$10 on sheet 5.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.7** and circle a face beside the "I can" line. In the saving question both rows say \$3, so the amount cannot tell them: look for the piggy bank.

Need help? Act out each story with real coins and the three jars before circling the word.

Ready for more? Save 5¢ a day: how many days until there is 30¢? Count by 5s to find out (6 days).

GET READY

- Three clear jars or cups labeled Spend, Save and Share
- 10 dimes or 10 play dollar bills for each pair
- Pictures of a piggy bank and a donation box

WORDS TO USE

spend: use money to buy something

save: keep money to use later

share: give to help others

ASK

- Is putting money in a donation box spending or sharing? Why?
- Why might someone save instead of spend?
- What would you save for?

WATCH FOR

Mixes up save and share because both go in a jar. Ask who the money is for: saved money is still yours for later; shared money helps someone else.

Thinks money in a bank is spent. Saved money is still yours: take a coin out of the Save jar to show it.

Splits 10 dimes into parts that make 9 or 11. Lay the parts on a ten frame: all ten spaces filled, no more.

ON ANIMAL MATH

PRINTABLE

Spend, Save and Share: sheets 1, 3 and 5

TOOL

Money: Coins and Bills, to split \$10 three ways

EXIT TICKET

1st Grade Money and Patterns Exit Tickets: Exit Ticket 12.7

Money and Patterns

Lesson 12.8: Repeating patterns

GOAL Students find the part of a pattern that repeats (the core), continue the pattern, and name it with letters: owl, owl, frog is A A B.

About 45 minutes

I can continue a pattern and name it with letters.

THE LESSON

- 1 Warm up** (5 min) Clap and snap a pattern (clap, clap, snap) and have the class join in. Then a student leads one.
- 2 Teach** (10 min) Build red, red, blue, red, red, blue with cubes. Ask what repeats and break the train after each red, red, blue: that is the core. Name it A A B. Show that clap, clap, snap is A A B too, then add the next two cubes: red, red.
Say: "The core is the part that repeats. The first thing is A, the next new thing is B."
- 3 Try it together** (10 min) Partners take turns: one builds a core twice (A B, A A B, A B B or A B C), the other names it with letter cards and adds the next three cubes. Include an A B B and an A B C.
- 4 Practice** (15 min) Students circle the core and write it with letters on sheet 1 of Repeating Patterns for 1st Grade, then draw the next three shapes on sheet 2. Early finishers make their own A B and A B C patterns on sheet 5.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.8** and circle a face beside the "I can" line. In the letter row, look at the second box: A is right; B means the student gave each shape its own letter.

Need help? Start with A B patterns of real things (cube, crayon, cube, crayon), said aloud before they are named with letters.

Ready for more? Make one A A B pattern three ways (cubes, claps, letters), or find the 12th thing in an A B C pattern.

GET READY

- Connecting cubes in three colors
- Letter cards A, B and C
- Crayons

WORDS TO USE

pattern: things in an order that repeats again and again

core: the part of a pattern that repeats

A A B: a pattern named with letters: two the same, then one new

ASK

- What part repeats? Show me where it starts again.
- How is your cube pattern like this one?
- What comes after the next diamond? How do you know?

WATCH FOR

Draws the last shape again, not the next one.

Read the pattern aloud from the start, pointing, and keep going.

Writes A B C for heart, heart, diamond. Same thing, same letter: lay an A card on each heart.

Circles only part of the core. In heart, heart, diamond the core is all three: does the circled part, again and again, make the whole row?

ON ANIMAL MATH

PRINTABLE **Repeating Patterns for 1st Grade:** sheets 1, 2 and 5; sheets 3–4 for more

PRINTABLE **Animal Patterns: What Comes Next?:** sheet 2, for review

TOOL **Pattern Blocks:** build a row of blocks that repeats

EXIT TICKET **1st Grade Money and Patterns Exit Tickets:** Exit Ticket 12.8

Money and Patterns

Lesson 12.9: Growing patterns

GOAL Students see how a pattern grows by the same amount from one step to the next, then draw and count the next step: 2, 3, 4, so step 4 has 5.

About 45 minutes

I can draw the next step of a growing pattern.

THE LESSON

- 1 Warm up** (5 min) Build an A B cube train and ask what comes next. Then ask: what if each part got bigger instead of repeating?
- 2 Teach** (10 min) Build towers of 2, 3 and 4 cubes and label them step 1, 2 and 3. Count each one and write 2, 3, 4 under them. What changes from one step to the next? One more cube on top. Build step 4 (5 cubes) and check. Then show one that grows by 2: 3, 5, 7.
| Say: "Each step gets one more. Step 4 has one more than step 3."
- 3 Try it together** (10 min) Partners build three steps of a growing pattern with blocks or tiles and trade: the other partner builds step 4 and says how many. Include one that grows by 2 (2, 4, 6) and a train that grows sideways (1, 2, 3).
- 4 Practice** (15 min) Students draw the next step on sheet 1 of My First Growing Patterns, count each step and draw step 4 on sheet 2, and circle the right step 4 on sheet 3. Sheet 4 grows by 2 or 3 up to step 6: keep it for early finishers.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.9** and circle a face beside the "I can" line. In the cube question, count what they drew: step 4 has 9 cubes. A drawing of 8 means they added one, not two.

Need help? Build each step with cubes on top of the picture, and add the new cubes in another color.

Ready for more? Write how many in steps 4, 5 and 6 on sheet 4, or make a growing pattern of their own on sheet 5 and tell how it grows.

GET READY

- Connecting cubes for each pair
- Pattern blocks or square tiles
- Whiteboards and markers

WORDS TO USE

growing pattern: a pattern that gets bigger by the same amount each step

step: one part of a growing pattern: step 1, step 2, step 3

ASK

- What stays the same in every step? What changes?
- How many will step 5 have? How do you know without building it?
- Is this a growing pattern or a repeating one?

WATCH FOR

Adds one each time when the pattern grows by 2. Write the count under each step and find how many more each step has.

Draws step 4 the same as step 3. Point to steps 1, 2 and 3 in order: what changed each time? Add that to step 3.

Draws the right number in the wrong shape, a row for a tower. Build step 3 with cubes and add to it, then draw what they built.

ON ANIMAL MATH

PRINTABLE

My First Growing Patterns: sheets 1-3; sheets 4-5 for more

TOOL

Pattern Blocks: build each step with one more block

EXIT TICKET

1st Grade Money and Patterns Exit Tickets: Exit Ticket 12.9

Money and Patterns

Lesson 12.10: Number patterns that add or take away

GOAL Students find the rule of a number pattern that adds or takes away the same amount (1, 2, 5 or 10), say it (“add 2”, “take away 5”), and use it to write the next numbers. **About 45 minutes**

I can continue a number pattern and find its rule.

THE LESSON

- 1 Warm up** (5 min) Skip count together: by 2s from 10 to 30, by 10s from 4 to 54, and back by 5s from 50 to 25.
- 2 Teach** (10 min) Write 12, 14, 16, 18 and mark each jump on the hundreds chart: 2 more each time, so the rule is add 2 and next come 20, 22. Then write 85, 75, 65, 55: down by 10 each time, so the rule is take away 10 and 45 is next. Check the rule on every jump.
Say: “I find what changes from one number to the next. If it is the same every time, that is the rule.”
- 3 Try it together** (10 min) Partners pick a start number and a rule card and write four numbers; the other partner writes the next three and names the rule. Include ones that cross a ten (27, 29, 31) and some that go down.
- 4 Practice** (15 min) Students fill in sheet 1 of Number Patterns, Count Up and of Count Down, writing the rule beside each row (rows by 3s are a stretch). Early finishers do sheet 2 of each.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 12.10** and circle a face beside the “I can” line. In the take away row, look for 55 and 50: a student who writes 65 and 70 added instead.

Need help? Use patterns that add 1 or add 10 on the hundreds chart, moving a counter one jump at a time.

Ready for more? Make a pattern with a rule of their own (start at 3, add 5) for a partner, or write the 10th number of a pattern.

GET READY

- A hundreds chart for each student
- Counters or dry erase markers
- Rule cards: add 1, add 2, add 5, add 10, take away 5, take away 10

WORDS TO USE

rule: what you do to get from one number to the next, like add 2

add: make more; the numbers go up

take away: make less; the numbers go down

ASK

- What is the rule? How do you know it works for every jump?
- Do the numbers get bigger or smaller? So do we add or take away?
- What comes before 16 in this pattern?

WATCH FOR

Adds 1 every time, whatever the rule: 16, 18, 20, 21, 22. Write the jump above each pair of numbers first: +2, +2.

Adds when the numbers go down. Ask: are the numbers getting bigger or smaller? Smaller means take away.

Finds the rule from the first jump only. Check every jump: they must all be the same.

ON ANIMAL MATH

- PRINTABLE** **Number Patterns - Count Up (Simple):** sheets 1-2
- PRINTABLE** **Number Patterns - Count Down:** sheets 1-2
- MAKER** **Number Patterns:** Pattern Type Mixed, Difficulty Simple
- TOOL** **Hundreds Chart:** Skip Count Highlight
- EXIT TICKET** **1st Grade Money and Patterns Exit Tickets:** Exit Ticket 12.10