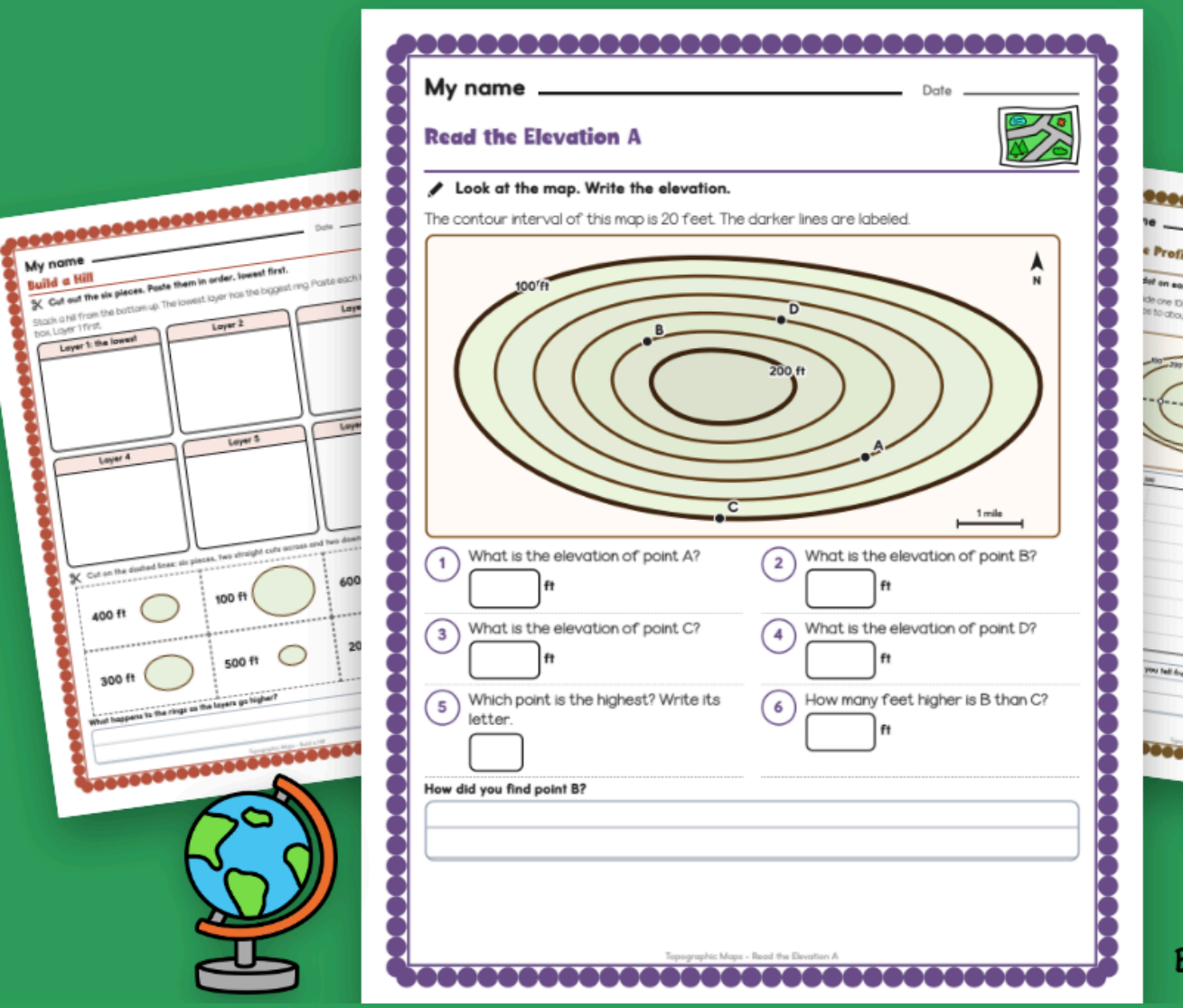
# TOPOGRAPHIC MAPS

## Contour Lines, Elevation, Profile - Grades 6-8

**27 STUDENT PAGES**




Bright Path Sped

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- The name line, every answer box, every ruled work box and every check box on the student pages are type-in fields, and so are the tracker, class grid, team note and family page. You can also print any page and write by hand.
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## Print at 100 percent

Turn off fit to page and shrink to fit so the ruled lines stay 0.34 inch apart. Every student page is black and white inside a colored border, so it still reads when copied in black and white.

## Student work

A filled-in tracker, class grid or team note carries a real student's name. Keep it in the data folder, and use a first name only on any page that leaves your hands.

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PREVIEW

# How To Read a Page

The parts of a student page, then the page types in the order they come.

## The parts of a page

- **The answer box.** A bordered box for a letter or a number. Click it to type, or print and write in it.
- **The ruled work box.** Lines 0.34 inch apart. A short answer gets 4 lines and the main idea box gets 3. It types and prints.
- **The check box.** True or false, map A or map B, yes or not yet: click or mark one.
- **The map.** Brown contour lines drawn for this file, the darker lines labeled in feet. The black dots with letters are the points to read.
- **The graph and the grid.** The profile pages and the island page are for a pencil: they print, and the dotted lines show where to mark.
- **The cut line.** Six pieces in a 3 by 2 grid, each 2.4 by 1.25 inches, edge to edge: two cuts across and two down.

| Page type | What it looks like | What the student does |
|---|---|---|
| Before You Read, Words to Know | 2 pages, 12 items | True or false on the big idea; match eight words to their meanings. |
| 5 Readings | 10 checks | Read beside a figure, write the main idea, answer two checks with a letter. |
| Sorts | 2 pages, 14 items | Name the landform on each small map; pick the steeper of two. |
| Read the Elevation, Find the Interval | 4 pages, 28 items | Write elevations, count spaces, find the interval and the highest line. |
| Draw and Profile | 5 pages, 21 dots | Draw rings from a side view; plot a profile from a map. |
| Write, Quiz, Cut and Paste | 6 questions, 12 items, 18 pieces | Short answers, a trail claim, a two-part quiz and three cut-and-paste mats. |

## Untimed, unscored on the page

No student page has a timer or a score on it. The keys and the tracker are for you. The answer keys are on pages 32 to 36.

## A short account, not a full textbook

Each reading is a summary in plain words. It is not a complete earth science course, and it is not tied to any particular standard. Add your own textbook or a real topographic map for more depth.

## Printing and the type-in fields

Every page prints clean in black and white. The name line, every answer box, every ruled box and every check box are type-in fields in any PDF reader: click one, type, then save. This is a fillable PDF, not a slideshow or a word-processor file.

## Open answers

Short answers, the drawing pages and the trail page are open. The keys give a sample and what to look for. Accept any answer that is true to the readings and explains its reason.

PREVIEW

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My name _____ Date _____

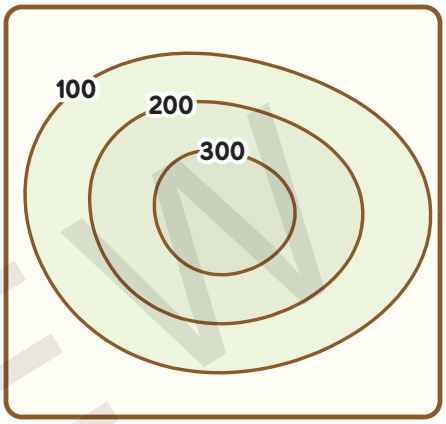


## Before You Read

**Read the big idea. Then check true or false.**

A mapmaker cannot fit a mountain on a sheet of paper. Contour lines are how a flat map shows high and low.

| | |
|---|---|
| **The word** | A topographic map shows the shape of the land. It uses brown contour lines to show how high the ground is. |
| **The idea** | Every point on one contour line has the same elevation. Elevation is the height above sea level. |
| **The tools** | Read the numbers on the lines. Look at how close the lines are. Look for loops and tick marks. |



A hill, seen from above.

Try it. Is each sentence true or false?

1. A topographic map shows the shape of the land. ☐ true ☐ false

2. A contour line joins places that have the same elevation. ☐ true ☐ false

3. Two contour lines can cross each other. ☐ true ☐ false

4. Lines that are close together show a gentle slope. ☐ true ☐ false

**In your own words: what is a topographic map?**

PREVIEW

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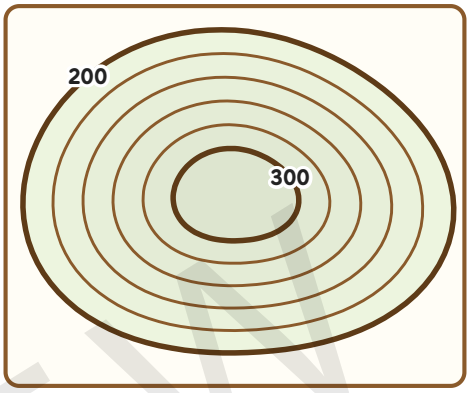
My name _____ Date _____

# Reading: Contour Interval

**Read the page. Write the main idea. Then answer.**

## How far apart are the lines?

The contour interval is the difference in elevation between two contour lines that sit side by side. A mapmaker picks one interval and uses it on the whole map. If the interval is 20 feet, the lines stand for 100, 120, 140 feet, and so on. Many maps draw every fifth line darker and print its elevation on it. These are called index contours, and they make a crowded map easier to read. To find the interval, subtract the elevations of two labeled lines. Then divide by the number of spaces between them. Two index contours labeled 100 and 200 with five spaces between them give 100 divided by 5, so the interval is 20 feet.




Index lines: 200 and 300. Five spaces. 100 divided by 5 is 20 feet.

**Main idea: What is this page about?**

**Fact: Write one fact from the reading that you want to remember.**

**Check what you read. Write the letter in the box.**

1. What is an index contour? ☐
   - **A** A darker line that is labeled with its elevation
   - **B** The lowest line on every map
   - **C** A line that shows a river

2. Lines labeled 100 and 200 have five spaces between them. What is the interval? ☐
   - **A** 5 feet
   - **B** 20 feet
   - **C** 100 feet

PREVIEW

Preview - Bright Path Shed

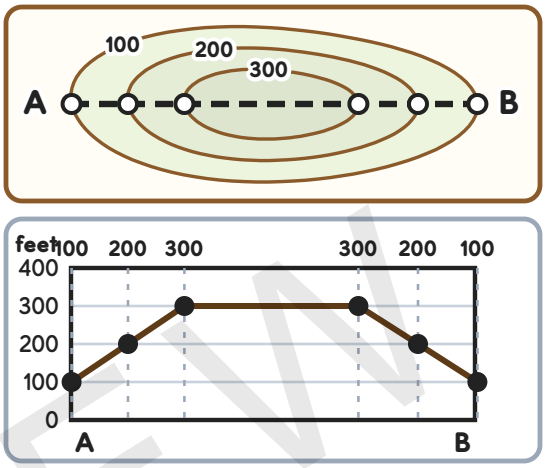
My name _____ Date _____

# Reading: Profile View

**Read the page. Write the main idea. Then answer.**

## What does the land look like from the side?

A topographic map shows the land from above. A profile shows the land from the side, as if the ground were sliced along a line. To draw a profile, first draw a line from point A to point B on the map. Next, mark each place where the line crosses a contour line and write its elevation. Then set up a graph with elevation up the side and the line from A to B along the bottom. Make a dot above each mark at its elevation. Last, connect the dots with a smooth line. The finished line is the profile. It rises where the land rises and falls where the land falls.




Map view above. Profile below.

**Main idea: What is this page about?**

**Fact: Write one fact from the reading that you want to remember.**

**Check what you read. Write the letter in the box.**

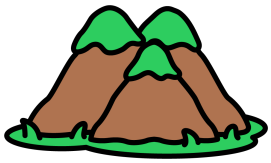
1. A profile shows the land from which view? ☐
   - **A** From directly above
   - **B** From the side
   - **C** From the back of the map

2. Where does each dot go on the profile graph? ☐
   - **A** Above the mark, at the elevation of that line
   - **B** At the top of the page
   - **C** At zero feet

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

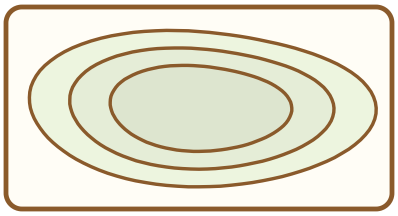


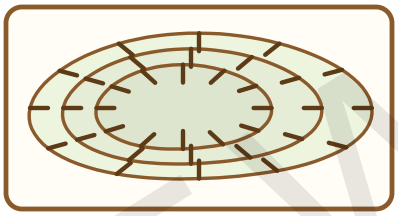
# Hill, Bowl or Ridge?

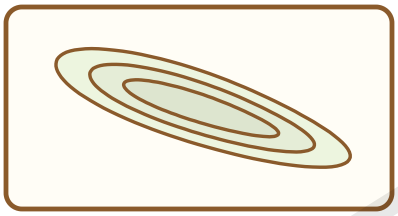
**Is it a hill, a bowl or a ridge? Write the letter.**

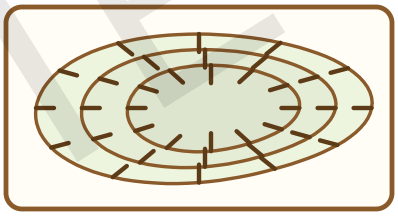
**A hill B depression C ridge**

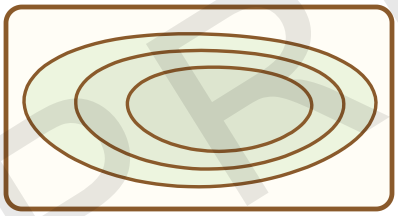
Each map shows one landform. A bowl has tick marks on the inside of the lines.

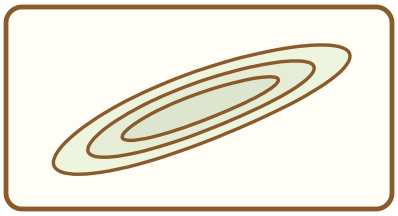
1  ☐

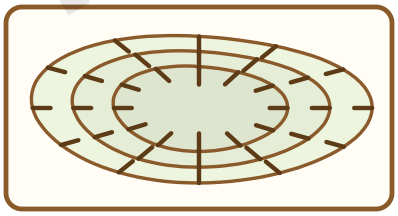
2  ☐

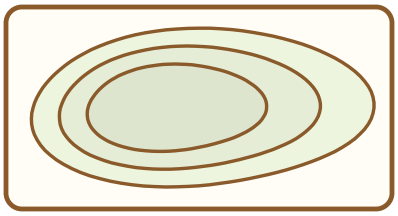
3  ☐

4  ☐

5  ☐

6  ☐

7  ☐

8  ☐

**Pick one map. How do you know what it is?**

PREVIEW

Preview - Bright Path Shop

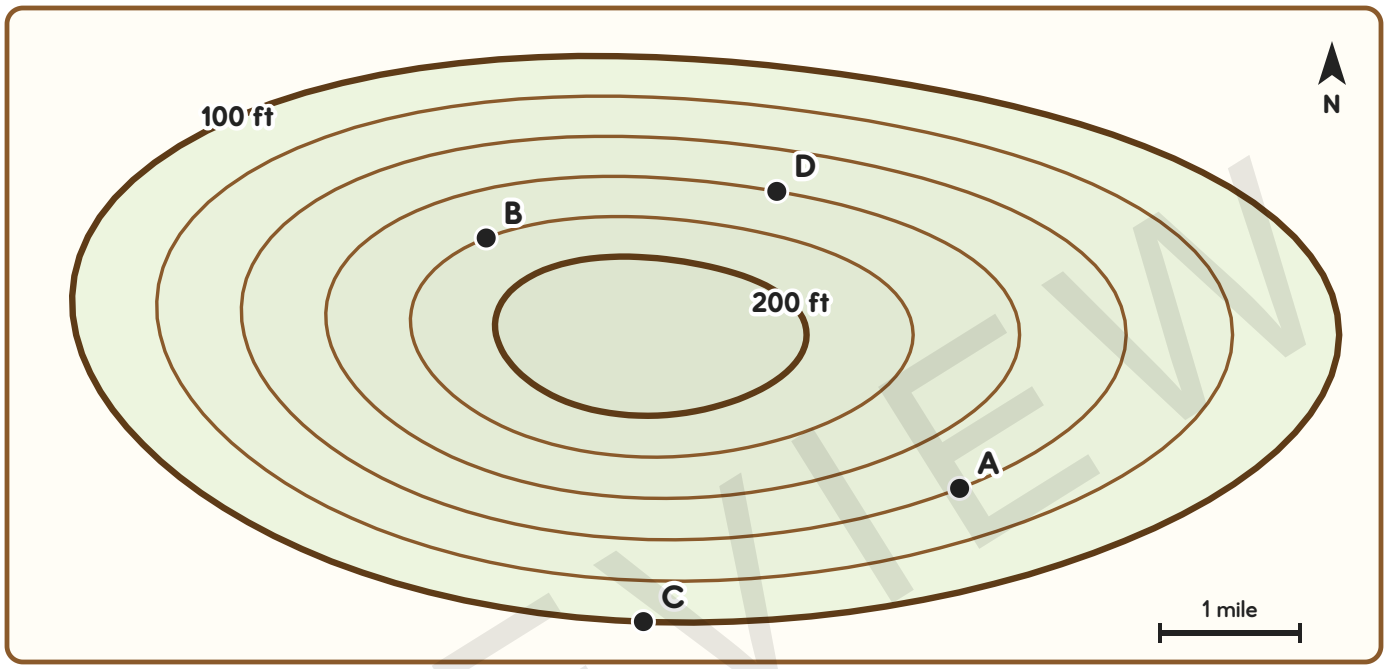
My name _____ Date _____



# Read the Elevation A

**Look at the map. Write the elevation.**

The contour interval of this map is 20 feet. The darker lines are labeled.




1. What is the elevation of point A? _____ ft

2. What is the elevation of point B? _____ ft

3. What is the elevation of point C? _____ ft

4. What is the elevation of point D? _____ ft

5. Which point is the highest? Write its letter. _____

6. How many feet higher is B than C? _____ ft

**How did you find point B?**

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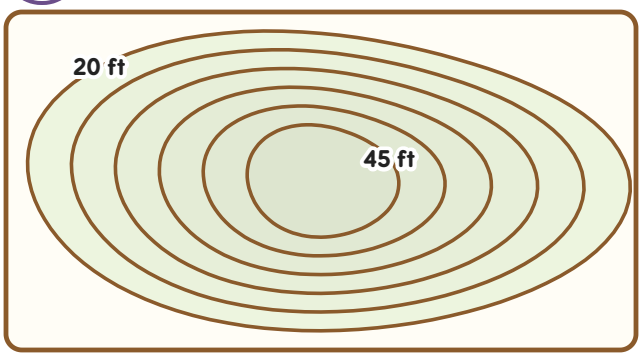
My name _____ Date _____

# Find the Interval B

**Count the spaces. Find the interval.**

Subtract the two labels. Divide by the number of spaces. The highest line is the innermost one.

**1** **Two lines are labeled.**

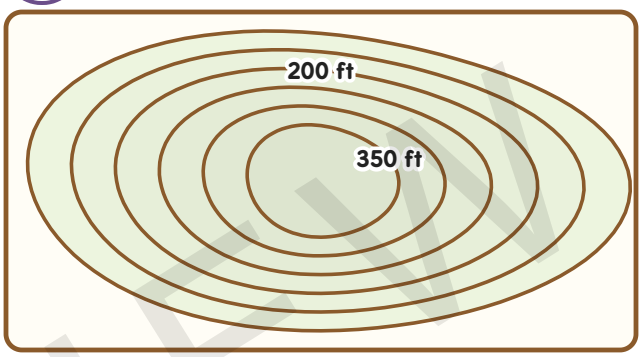



Spaces between the labels: ☐

Contour interval: ☐ ft

The highest line is: ☐ ft

**2** **Two lines are labeled.**

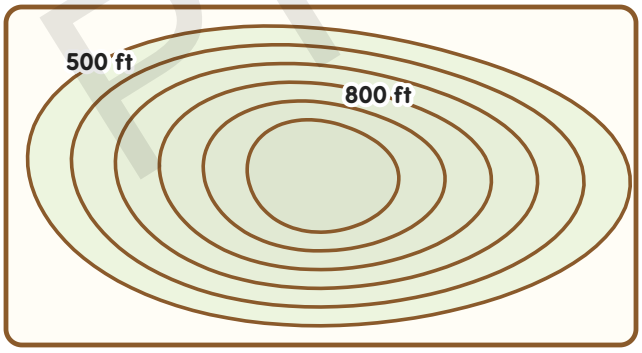



Spaces between the labels: ☐

Contour interval: ☐ ft

The highest line is: ☐ ft

**3** **Two lines are labeled.**

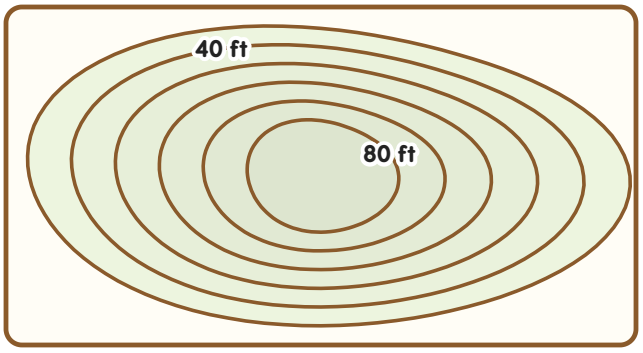



Spaces between the labels: ☐

Contour interval: ☐ ft

The highest line is: ☐ ft

**4** **Two lines are labeled.**



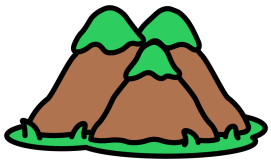

Spaces between the labels: ☐

Contour interval: ☐ ft

The highest line is: ☐ ft

PREVIEW

My name _____ Date _____

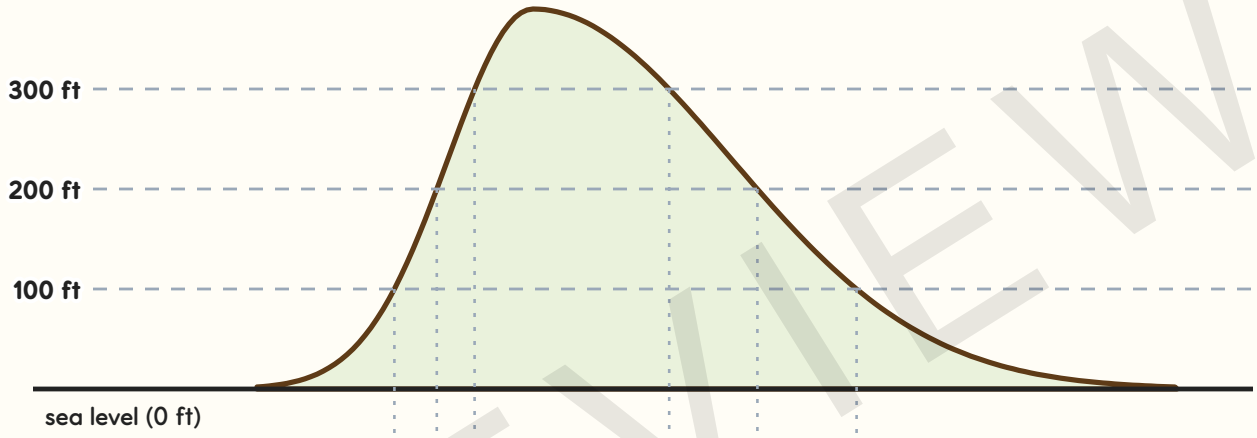


# Draw the Lopsided Hill

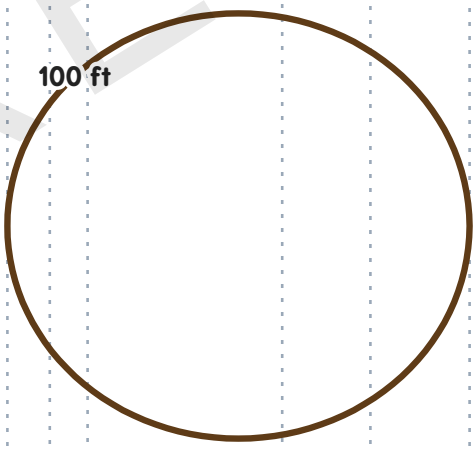
**Look at the side view. Draw the rings on the map.**

This hill is steeper on the left than on the right. The dotted lines show where each ring touches the ground line. Draw the 200 ft and 300 ft rings and write each elevation. Which side will have the lines close together?

**Side view**




**Map view (from above)**




**The lines are closer together on the ____ side.**

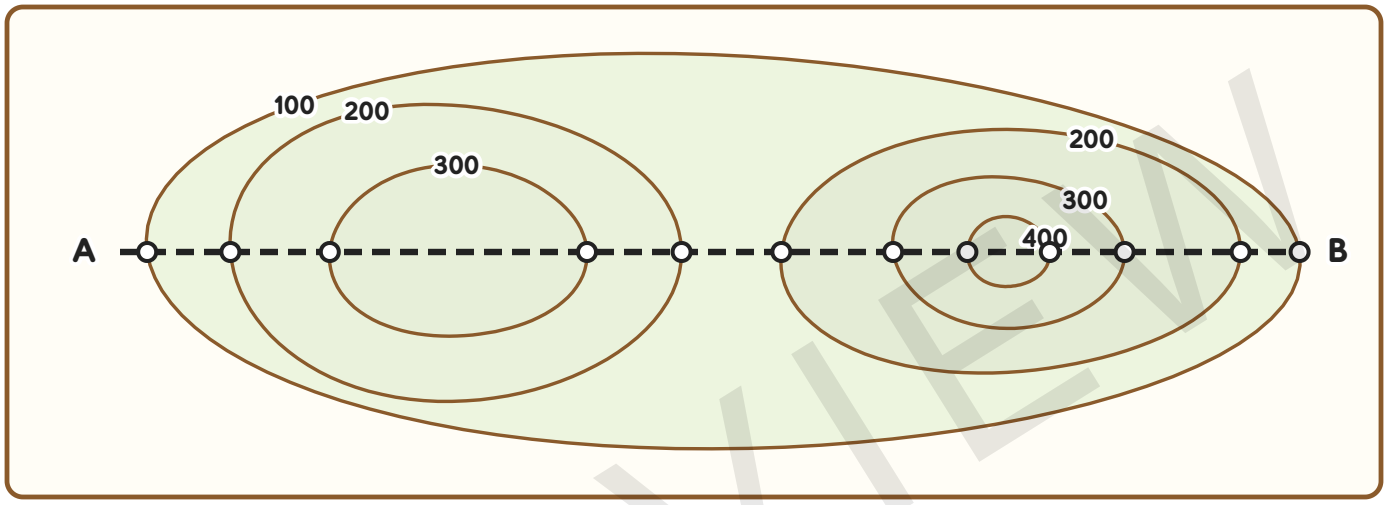
PREVIEW

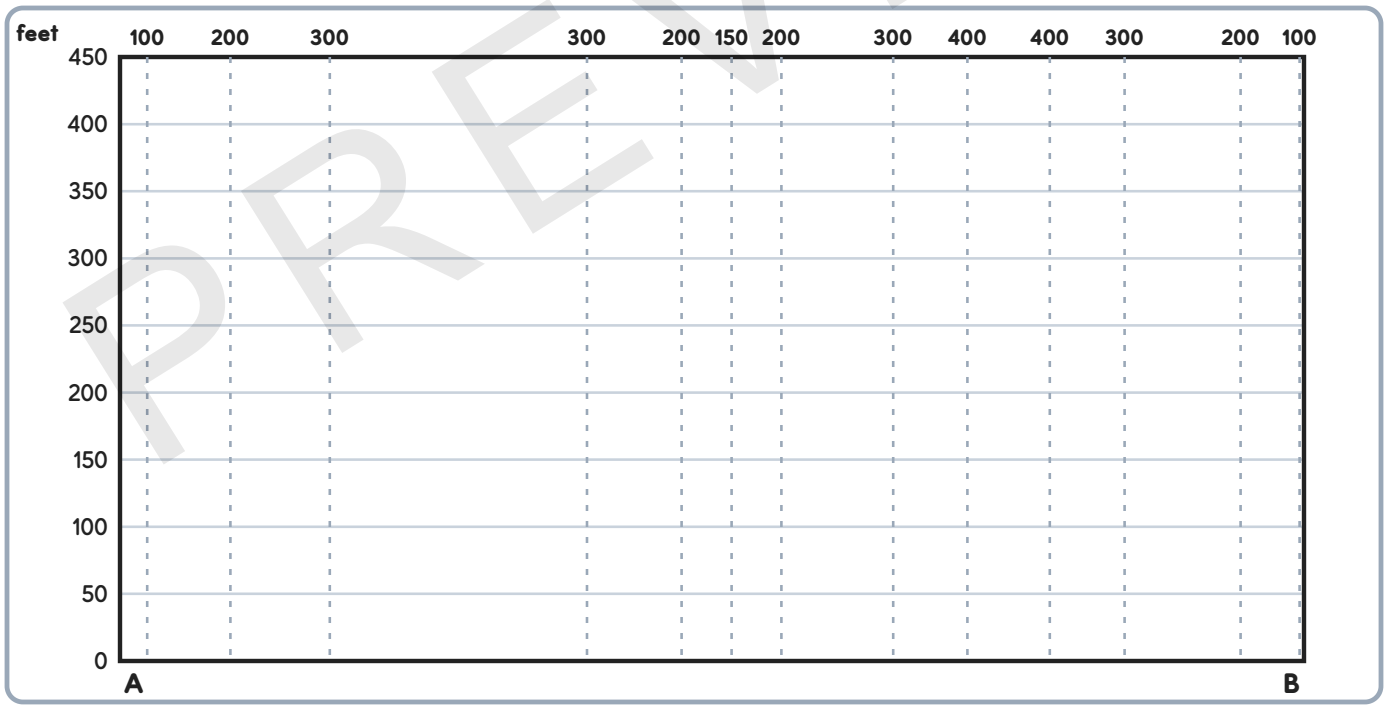
# My name _____ Date _____

## Draw the Profile B

**Make a dot on each dotted line. Join the dots.**

Two hills sit inside one 100 ft line. Make a dot at the elevation on each dotted line. Between the hills the land dips to about 150 ft, so that dotted line is marked 150. Join the dots with a smooth line.




**Which hill is higher? How can you tell from the profile?**

PREVIEW

My name _____ Date _____

## Think It Through B

**Answer each question in full sentences.**

Use what you learned from the readings to answer.

4 What is a contour interval? Give an example with numbers you choose.

5 Two hills are 300 feet tall. Hill A has lines close together. Hill B has lines far apart. How would each one feel to climb?

6 What does a profile show that the map view does not?

PREVIEW

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My name _____ Date _____

## Quiz, Part A

**Read each one. Write the letter of the best answer.**

Write the letter of the best answer in the box.

1. What is the name for the height of a place above sea level?
   - **A** Elevation
   - **B** Interval
   - **C** Profile

2. Contour lines that are far apart show what?
   - **A** A cliff
   - **B** A gentle slope
   - **C** A depression

3. Which line is darker and has its elevation printed on it?
   - **A** A hachure
   - **B** An index contour
   - **C** A depression line

4. A set of closed loops with tick marks on the inside shows what?
   - **A** A hill
   - **B** A ridge
   - **C** A depression

5. Lines at 400 and 500 feet have 4 spaces between them. What is the interval?
   - **A** 25 feet
   - **B** 50 feet
   - **C** 100 feet

6. A profile is a drawing of the land from which view?
   - **A** From above
   - **B** From the side
   - **C** From space

PREVIEW

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My name _____ Date _____

# Cut and Paste: Features

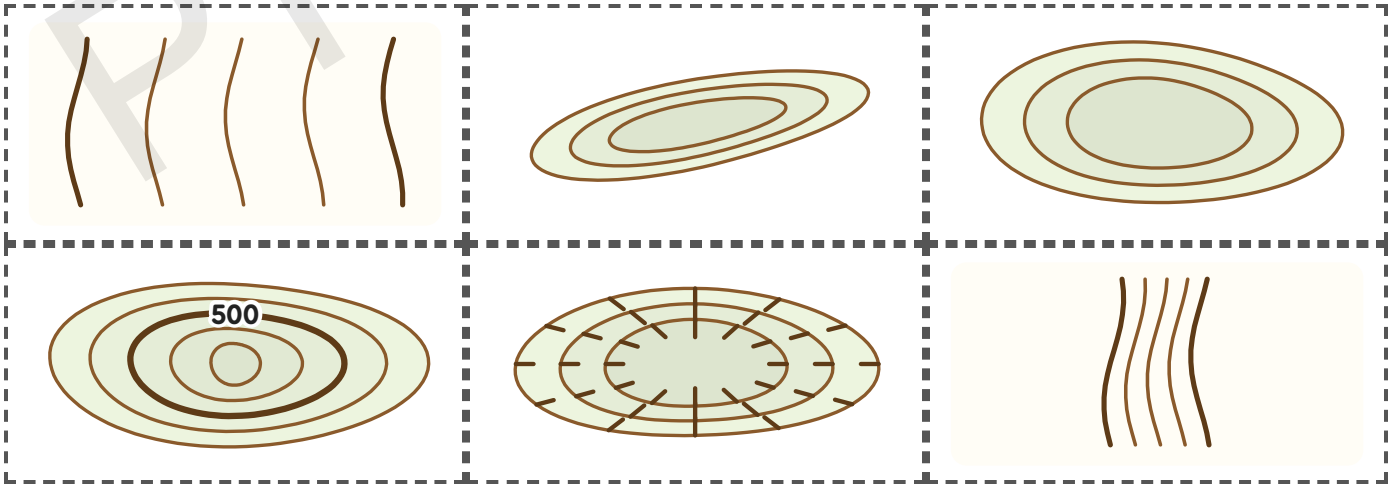
**Cut out the six pieces. Paste each one in the right box.**

Look at each map. Paste it in the box that names what it shows.

| Hill | Depression | Ridge |
|---|---|---|
| | | |

| Steep slope | Gentle slope | Index contour |
|---|---|---|
| | | |

**Cut on the dashed lines: six pieces, two straight cuts across and two down.**




**Which piece was hardest to place? Why?**

PREVIEW

My name _____ Date _____

## Check My Own Work

**Check your own work. Mark yes or not yet.**

| | | | |
|---|---|---|---|
| 1 | I can tell what a contour line shows. | ☐ yes | ☐ not yet |
| 2 | I can find the contour interval of a map. | ☐ yes | ☐ not yet |
| 3 | I can read the elevation of a point on a map. | ☐ yes | ☐ not yet |
| 4 | I can tell a steep slope from a gentle slope. | ☐ yes | ☐ not yet |
| 5 | I can tell a hill, a ridge and a depression apart. | ☐ yes | ☐ not yet |
| 6 | I can draw contour lines from a side view. | ☐ yes | ☐ not yet |
| 7 | I can draw a profile from a map. | ☐ yes | ☐ not yet |
| 8 | I can use the lines on a map to choose the easier trail. | ☐ yes | ☐ not yet |

**The skill I understand best is...**

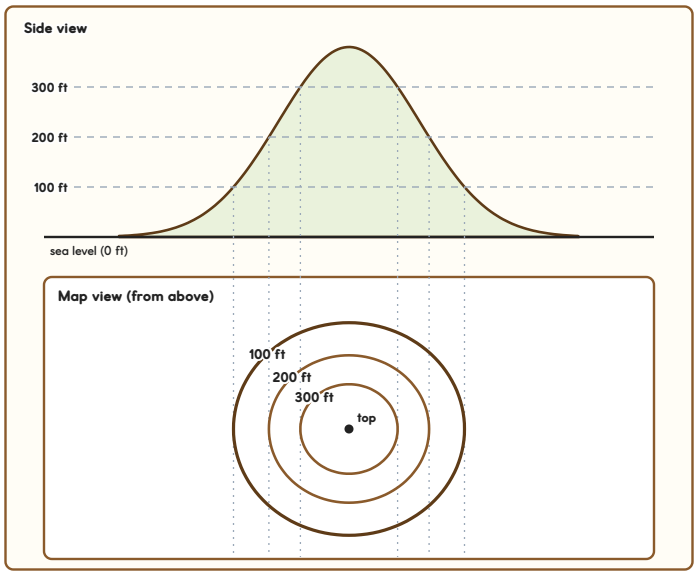
**One thing I still want to know is...**

PREVIEW

# Answer Key: Drawing and Profiles

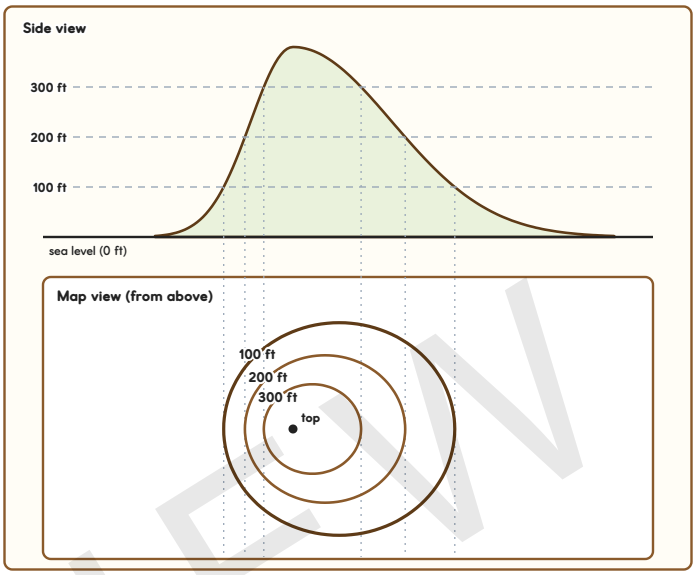
Drawing pages 18 and 19, profile pages 21 and 22. A student's rings and line may be a little wobbly: accept any smooth line through the marks.

## Draw the Hill (page 18)



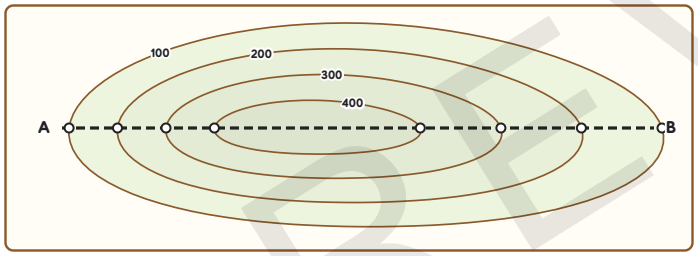

The 200 ft and 300 ft rings are circles around the same center, smaller than the 100 ft ring.

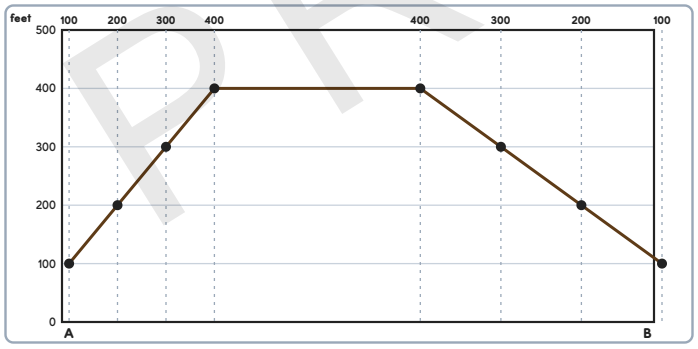
## Draw the Lopsided Hill (page 19)




The rings are closer together on the left (steep side) and farther apart on the right (gentle side).

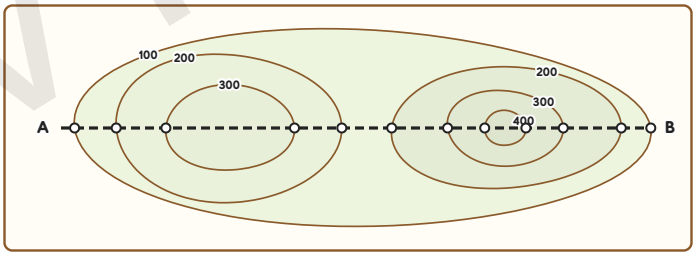
## Draw the Profile A (page 21)

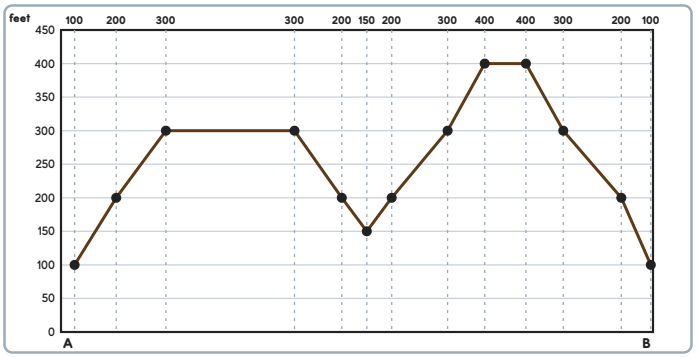



8 dots. The line climbs to 400 ft in the middle and falls again; it climbs faster on the left, where the lines are closer.

## Draw the Profile B (page 22)




13 dots, including the dip to 150 ft between the hills. The right hill reaches 400 ft and the left hill 300 ft.

### Checking a profile

- Every dot sits on its dotted line at the elevation printed at the top of that line.
- On page 22, the dotted line marked 150 is the dip between the hills: the land there is lower than 200 ft and higher than 100 ft.
- The finished line starts and ends at 100 ft, and it never rises above the highest line it crosses.

PREVIEW

# Answer Key: Quiz, Cut and Paste, Main Ideas

The two quiz pages, the three cut-and-paste mats and the main idea boxes from the readings.

## Quiz, Part A page 26

| # | Starts with | Answer |
|---|---|---|
| 1 | What is the name for the … | A: Elevation |
| 2 | Contour lines that are far apart … | B: A gentle slope |
| 3 | Which line is darker and has … | B: An index contour |
| 4 | A set of closed loops with … | C: A depression |
| 5 | Lines at 400 and 500 feet … | A: 25 feet |
| 6 | A profile is a drawing of … | B: From the side |

## Quiz, Part B page 27

| # | Answer |
|---|---|
| 1 | 50 |
| 2 | 200 |
| 3 | 300 |
| 4 | S |
| 5 | 100 |
| 6 | right |

### Reading the sort keys

Read each strip left to right, top row first. On Build a Hill the biggest ring is the lowest layer. The layers are 100, 200, 300, 400, 500 and 600 ft, so the 600 ft ring is the smallest.

## Build a Hill page 28

| Piece (row, column) | Box |
|---|---|
| r1 c1: 400 ft ring | Layer 4 |
| r1 c2: 100 ft ring | Layer 1 |
| r1 c3: 600 ft ring | Layer 6 |
| r2 c1: 300 ft ring | Layer 3 |
| r2 c2: 500 ft ring | Layer 5 |
| r2 c3: 200 ft ring | Layer 2 |

## Cut and Paste: Features page 29

| Piece (row, column) | Box |
|---|---|
| r1 c1: map of a gentle slope | Gentle slope |
| r1 c2: map of a ridge | Ridge |
| r1 c3: map of a hill | Hill |
| r2 c1: map of a index contour | Index contour |
| r2 c2: map of a depression | Depression |
| r2 c3: map of a steep slope | Steep slope |

## Cut and Paste: Words page 30

| Piece (row, column) | Box |
|---|---|
| r1 c1: How high a place … | Elevation |
| r1 c2: The elevation difference between … | Contour interval |
| r1 c3: A bowl in the … | Depression |
| r2 c1: A line that joins … | Contour line |
| r2 c2: The land as seen … | Profile |
| r2 c3: A darker line that … | Index contour |

## Main idea boxes pages 6 to 10

| Reading | A good main idea box says |
|---|---|
| Contour Lines | A contour line joins points that have the same elevation. The lines never cross, and loops inside loops show a hill. |
| Contour Interval | The contour interval is the elevation difference between side-by-side lines. Index contours are darker and labeled. |
| Steep and Gentle Slopes | Lines close together show a steep slope. Lines far apart show a gentle slope. |
| Hills, Ridges and Depressions | A hill is loops inside loops. A ridge is a long narrow hill. A depression has tick marks and the ground goes down. |
| Profile View | A profile is a side view of the land. Mark where the line crosses each contour line, plot the elevations and connect the dots. |

PREVIEW

# Class Progress Grid

Every student on one grid: items right by page type.

Class or group _____ Month _____

| Student | Basics and words (of 12) | Readings (of 10) | Sorts (of 14) | Elevation and interval (of 28) | Profiles (of 21) | Quiz (of 12) | Cut and paste (of 18) |
|---|---|---|---|---|---|---|---|
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PREVIEW

## How to fill this in

For each column, add up how many items that student has right with no prompt (the tracker rows). One glance across a row shows which skill is easiest and which is next.

## Grouping for small-group time

Students low in Readings need the readings read aloud and the main idea box done together (pages 6 to 10). Students low in Elevation and interval can start with the sorts (pages 12, 13) and the cut-and-paste mats (pages 28 to 30). Students near full marks can move to the profiles (21, 22) and the trail page (25).

# Dana's Tracker (Invented Student)

Dana R. is invented; nothing on this page describes a real student. The blank tracker is on page 37.

| Student | Teacher | Month |
|---|---|---|
| Dana R. (an invented student) | Mr. Chen (invented) | September to October |

| Page | Page type and set | Items | Right | Date | Notes |
|---|---|---|---|---|---|
| 5 | Before You Read | 4 | 4 | 9/22 | - |
| 6 | Reading: Contour Lines | 2 | 2 | 9/24 | - |
| 7 | Reading: Contour Interval | 2 | 1 | 9/25 | Forgot to divide by the spaces |
| 8 | Reading: Steep and Gentle Slopes | 2 | - | - | - |
| 9 | Reading: Hills, Ridges and Depressions | 2 | - | - | - |
| 10 | Reading: Profile View | 2 | - | - | - |
| 11 | Words to Know | 8 | 6 | 9/29 | Mixed up interval and index |
| 12 | Hill, Bowl or Ridge? | 8 | 7 | 10/1 | Called a bowl a hill |
| 13 | Steep or Gentle? | 6 | - | - | - |
| 14 | Read the Elevation A | 6 | 5 | 10/3 | Subtracted wrong for the difference |
| 15 | Read the Elevation B | 6 | - | - | - |
| 16 | Find the Interval A | 8 | - | - | - |
| 17 | Find the Interval B | 8 | - | - | - |
| 21 | Draw the Profile A | 8 | - | - | - |
| 22 | Draw the Profile B | 13 | - | - | - |
| 26 | Quiz, Part A | 6 | - | - | - |
| 27 | Quiz, Part B | 6 | - | - | - |
| 28 | Build a Hill | 6 | - | - | - |
| 29 | Cut and Paste: Features | 6 | - | - | - |
| 30 | Cut and Paste: Words | 6 | - | - | - |

## How to read it

Dana R. has done **6 of 20** scored pages and got **25 of 30** items right with no prompt. **2** pages were all right and **4** carry a note. Every number comes from the table.

## What the table points to

The lowest page is Reading: Contour Interval (1 of 2). That is where the next practice goes. The 14 pages left blank are not tried yet, never wrong.

PREVIEW

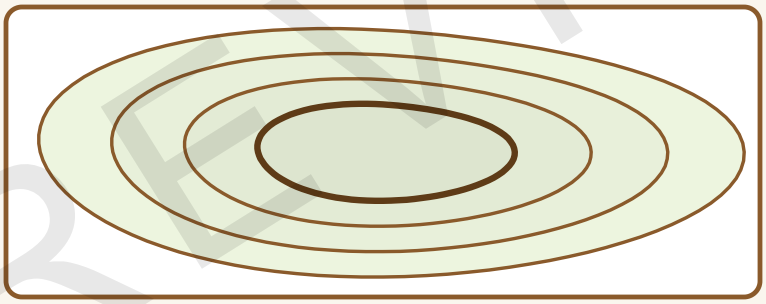
# Binder Cover

Slide this into the front of a binder. Type a name in the two fields or write it by hand. The divider tabs and a spine label to cut out are on the next page (page 44).

Earth Science - Maps

# TOPOGRAPHIC MAPS

## Readings, Maps and Practice



**Contour lines** | **Interval** | **Slope** | **Profile**

Teacher _____

Class or student _____

PREVIEW