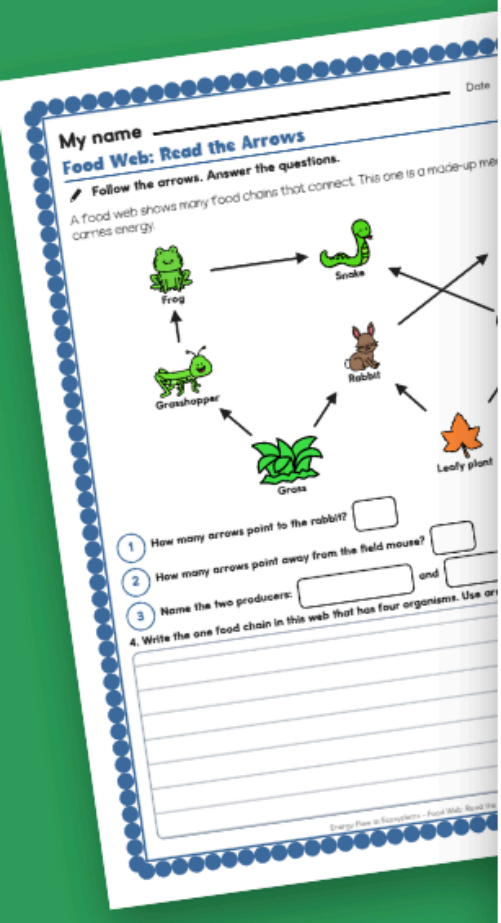
ENERGY FLOW IN ECOSYSTEMS

FOOD WEBS + PYRAMIDS

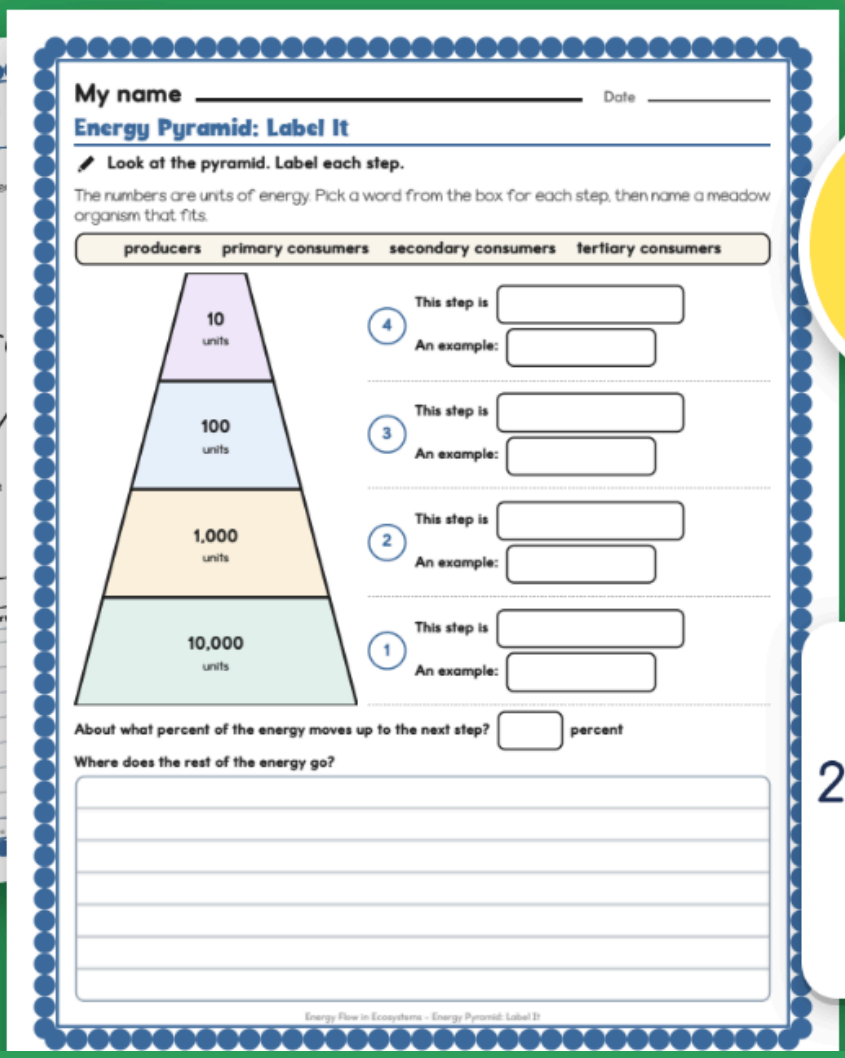

My name _____ Date _____

Food Web: Read the Arrows

Follow the arrows. Answer the questions.

A food web shows many food chains that connect. This one is a made-up me
carries energy.

1. How many arrows point to the rabbit? ____
2. How many arrows point away from the field mouse? ____
3. Name the two producers: ____ and ____
4. Write the one food chain in this web that has four organisms. Use ar


My name _____ Date _____

Energy Pyramid: Label It

Look at the pyramid. Label each step.

The numbers are units of energy. Pick a word from the box for each step, then name a meadow organism that fits.

producers | primary consumers | secondary consumers | tertiary consumers

4. This step is _____ An example: _____
3. This step is _____ An example: _____
2. This step is _____ An example: _____
1. This step is _____ An example: _____

About what percent of the energy moves up to the next step? ____ percent

Where does the rest of the energy go?

Energy Flow in Ecosystems - Energy Pyramid: Label It

GRADES 6-8

21 student pages

Bright Path Sped

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- Open it in a PDF reader (Adobe Acrobat Reader, Preview, or your browser), click into a line or a box, type, and Save As.
- 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.
- It works offline. No account, no subscription, no internet connection needed after you download it.

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.

Need help?

If a field will not behave or a page will not print the way you expect, use Ask a Question on the product page before leaving a review. Every question is read, and a fix to the file ships as a free update: re-download it any time from My Purchases.

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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 word, a letter or a number. Click it to type, or print and write in it.
- **The ruled work box.** Lines 0.34 inch apart for showing work or writing sentences.
- **The check box.** TRUE or FALSE, yes or not yet, or which kind: click or mark.
- **The arrows.** In every chain and web an arrow points toward the organism that gets the energy. The pictures are licensed clip art of made-up meadow animals and plants, not scale drawings.
- **The cut line.** Six pieces in a 3 by 2 grid, each 2.4 by 1.25 inches, edge to edge: one cut across and two down.

Page type	What it looks like	What the student does
Words and reading	4 pages	Producers, consumers, decomposers; four more words; a short reading; one worked example.
Sort	2 pages, 14 items	Sort organisms by role (pictures) and by diet (what each one eats).
Chains and web	3 pages	Label a chain, fill the missing organism, read the arrows in a web.
Pyramid and 10 percent	3 pages, 15 items	Label the steps of a pyramid; find the energy up, down and lost.
Check, sort and assess	the rest	True or false, find the mistake, two cut-and-paste sorts, short answer, quiz, exits.

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 26 to 29.

Checked by computer

Every energy number in the pages and keys is computed from the one 10 percent rule, and every question about the web is computed from its list of arrows. The percent is a rule of thumb: real ecosystems vary, so the page says about 10 percent.

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.

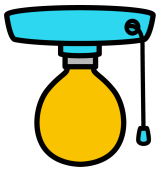
Room to work

Work boxes hold a line or two of steps. If a student needs more room, hand over one page a day, or let students work on scrap paper and copy the answer into the box.

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____



Producers, Consumers, Decomposers

Read each card. Fill in the blank.

Energy moves through a meadow from the sun to the plants to the animals. Keep this page next to you.

Producer

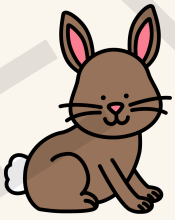
Makes its own food from sunlight. Every food chain starts with one.



The grass is a _____

Consumer

Cannot make food. Gets energy by eating plants or animals.



The rabbit is a _____

Decomposer

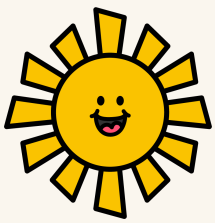
Breaks down dead plants and animals and returns what is left to the soil.



The mushroom is a _____

Energy source

Nearly all the energy in a food chain starts here.



The energy starts with the _____

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Read and Answer

Read the story. Then answer.

Nearly all the energy in an ecosystem begins with the sun. Plants and other producers use sunlight to make their own food. A meadow's grass and leafy plants are producers.

Consumers get energy by eating. A grasshopper eats grass. A frog eats the grasshopper. A snake eats the frog. Each time, energy moves one step along a food chain. In a diagram, the arrow points toward the organism that gets the energy.

Most of the energy is not passed on. Each living thing uses most of what it takes in to move, grow and stay warm, and some leaves as heat. A good rule of thumb is that only about 10 percent of the energy at one level moves up to the next level. If grass holds 10,000 units, the grasshoppers that eat it get about 1,000 units.

This is why an energy pyramid gets narrower toward the top, and why a meadow has many more plants than foxes. Decomposers, such as mushrooms, work at every level. They break down dead organisms and return what is left to the soil, where plants can use it again.

1. Where does nearly all the energy in a meadow begin?

2. What does the arrow in a food chain point toward?

3. Why is there less energy at each step up the pyramid?

4. What do decomposers do for the meadow?

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

Who Is It? Producer, Consumer or Decomposer

Look at each picture. Check the one that is true.

A producer makes food. A consumer eats. A decomposer breaks down what is dead.

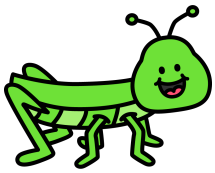
1



Grass

- [ ] Producer
- [ ] Consumer
- [ ] Decomposer

2



Grasshopper

- [ ] Producer
- [ ] Consumer
- [ ] Decomposer

3



Mushroom

- [ ] Producer
- [ ] Consumer
- [ ] Decomposer

4



Frog

- [ ] Producer
- [ ] Consumer
- [ ] Decomposer

5



Leafy plant

- [ ] Producer
- [ ] Consumer
- [ ] Decomposer

6



Rabbit

- [ ] Producer
- [ ] Consumer
- [ ] Decomposer

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Food Chain: Label It

Follow the arrows. Label each one.

Every food chain starts with the sun. Each arrow points to the one that gets the energy.



A = producer B = primary consumer C = secondary consumer
D = tertiary consumer

Write the letter for each organism in its box. Then answer:

The energy in this chain starts with the ____

The top of this chain is the ____

In your own words: what does an arrow in a food chain show?

PREVIEW

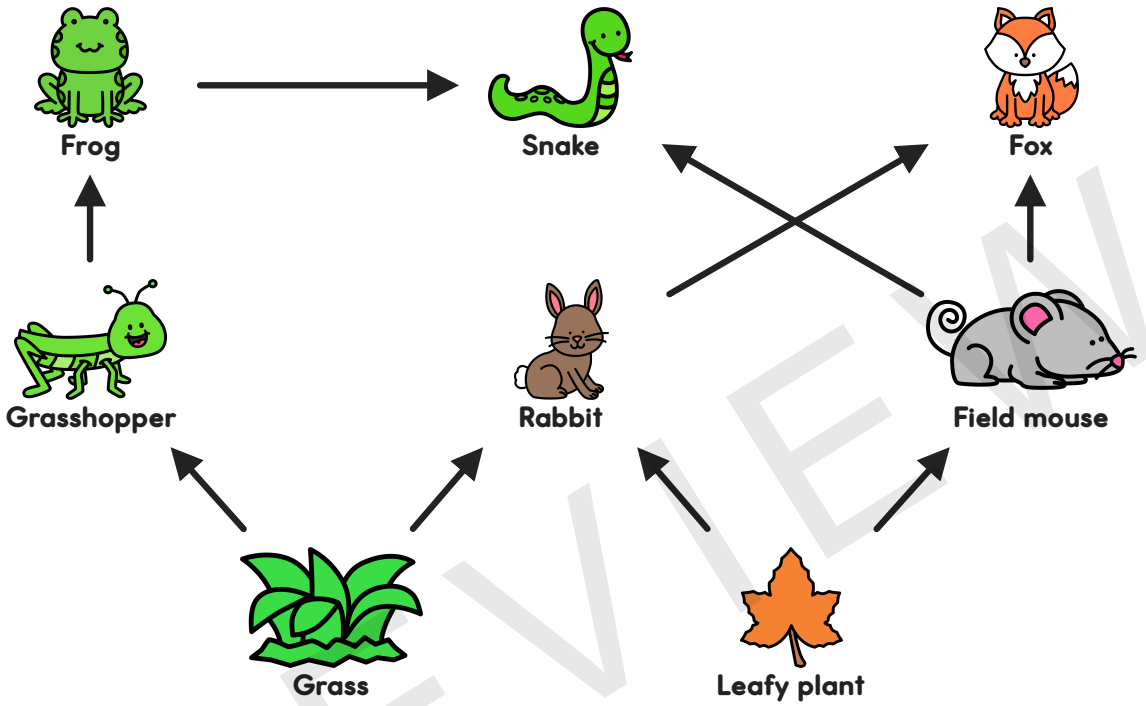
Preview - Bright Path Shed

My name _____ Date _____

Food Web: Read the Arrows

Follow the arrows. Answer the questions.

A food web shows many food chains that connect. This one is a made-up meadow. Every arrow carries energy.



1. How many arrows point to the rabbit? ____

2. How many arrows point away from the field mouse? ____

3. Name the two producers: _____ and _____

4. Write the one food chain in this web that has four organisms. Use arrows or the word to.

PREVIEW

Preview - Bright Path Shed

My name _____ Date _____

10 Percent Rule: Go Up the Pyramid

Take 10 percent each time you go up.

Ten percent is 0.10. Multiply by 0.10 each time you go up one step, or divide by 10.

1 Producers hold 4,000 units.

Primary consumers ☐

Secondary consumers ☐

Tertiary consumers ☐

Show one step:

2 Producers hold 6,000 units.

Primary consumers ☐

Secondary consumers ☐

Tertiary consumers ☐

Show one step:

3 Producers hold 20,000 units.

Primary consumers ☐

Secondary consumers ☐

Tertiary consumers ☐

Show one step:

4 Producers hold 50,000 units.

Primary consumers ☐

Secondary consumers ☐

Tertiary consumers ☐

Show one step:

PREVIEW

My name _____ Date _____

True or False

Check TRUE or FALSE for each one.

Read each statement. Check TRUE or FALSE.

1. Producers make their own food using light from the sun. ☐ TRUE ☐ FALSE

2. In a food chain, the arrow points toward the organism that is eaten. ☐ TRUE ☐ FALSE

3. About 10 percent of the energy at one level moves up to the next level. ☐ TRUE ☐ FALSE

4. The fox is a producer in the meadow. ☐ TRUE ☐ FALSE

5. If producers hold 1,000 units, the primary consumers get about 100 units. ☐ TRUE ☐ FALSE

6. Decomposers sit at the top of the energy pyramid. ☐ TRUE ☐ FALSE

PREVIEW

Preview - Bright Path Sped

My name _____ Date _____

Cut and Paste 2: Producer, Consumer, Decomposer

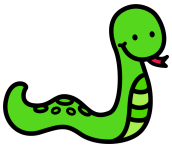
Cut out the six pieces. Paste each one in the right box.

A producer makes food. A consumer eats. A decomposer breaks down what is dead. Paste each piece in its box.

Producers	Consumers	Decomposers

PREVIEW

Cut on the dashed lines: six pieces, one cut across and two cuts down.

 Rabbit	 Mushroom	 Grass
Bacteria in the soil	 Leafy plant	 Snake

Pick one piece. Tell how you know where it goes.

My name _____ Date _____

Make Your Own Food Chain

Make up your own food chain.

Use the meadow organisms in the box. Check that each one eats the one before it.

Grass **Leafy plant** **Grasshopper** **Rabbit** **Field mouse** **Frog** **Snake** **Fox** **Mushroom**

1 Write a food chain with three or four organisms.

My food chain (start with a producer)

2 If your producers hold 8,000 units, how much energy reaches each consumer?

Primary: ☐ **Secondary:** ☐ **Tertiary:** ☐

3 Choose one arrow in your chain. Tell what it shows.

My arrow means...

PREVIEW

My name _____ Date _____

Exit Tickets

Answer. Then tell how sure you are.

Exit ticket 1 The producers hold 9,000 units. How many units reach the primary consumers?

How sure am I? ☐ **sure** ☐ **kind of sure** ☐ **not sure**

Exit ticket 2 Name one producer in the meadow food web.

How sure am I? ☐ **sure** ☐ **kind of sure** ☐ **not sure**

Exit ticket 3 What does an arrow in a food chain show?

How sure am I? ☐ **sure** ☐ **kind of sure** ☐ **not sure**

PREVIEW

Answer Key: Words, Reading, Worked Example, Sorts

Pages 5 to 10. Every number was computed from the 10 percent rule.

Item	Problem	Answer
p5 #1	Producer: The grass is a ...	producer
p5 #2	Consumer: The rabbit is a ...	consumer
p5 #3	Decomposer: The mushroom is a ...	decomposer
p5 #4	Energy source: The energy starts with the ...	sun
p6 #1	Herbivore: A rabbit eats grass. It is a ...	herbivore
p6 #2	Carnivore: A fox eats rabbits. It is a ...	carnivore
p6 #3	Omnivore: A bear eats berries and fish. It is an ...	omnivore
p6 #4	Trophic level: A grasshopper eats grass. It is level ...	2
p8 #1	Primary consumers, producers hold 3,000	300
p8 #2	Secondary consumers, producers hold 3,000	30
p8 #3	Tertiary consumers, producers hold 3,000	3
p9 #1	Grass	Producer
p9 #2	Grasshopper	Consumer

Item	Problem	Answer
p9 #3	Mushroom	Decomposer
p9 #4	Frog	Consumer
p9 #5	Leafy plant	Producer
p9 #6	Rabbit	Consumer
p10 #1	Rabbit eats grass and clover	Herbivore
p10 #2	Fox eats mice and rabbits	Carnivore
p10 #3	Black bear eats berries and fish	Omnivore
p10 #4	Frog eats grasshoppers	Carnivore
p10 #5	Grasshopper eats grass	Herbivore
p10 #6	Deer eats leaves and bark	Herbivore
p10 #7	Snake eats frogs and mice	Carnivore
p10 #8	Raccoon eats berries and crayfish	Omnivore

Sample answers, reading page 7

- **1. Where does nearly all the energy in a meadow begin?** With the sun.
- **2. What does the arrow in a food chain point toward?** Toward the organism that gets the energy (the one that eats).
- **3. Why is there less energy at each step up the pyramid?** Each organism uses most of its energy to live, and only about 10 percent moves up.
- **4. What do decomposers do for the meadow?** They break down dead organisms and return what is left to the soil.

Check a role

A producer makes its own food from sunlight. A consumer eats other living things. A decomposer breaks down dead plants and animals. A herbivore eats only plants, a carnivore only animals, an omnivore both.

PREVIEW

Answer Key: 10 Percent, True or False, Mistakes, Quiz

Pages 15 to 16, 17, 18, 23 and 24. The student in each Find the Mistake problem is invented. Accept a correct number written with or without a comma.

Item	Problem	Answer
p15 #1	Producers hold 4,000	400, 40, 4
p15 #2	Producers hold 6,000	600, 60, 6
p15 #3	Producers hold 20,000	2,000, 200, 20
p15 #4	Producers hold 50,000	5,000, 500, 50
p16 #1	The producers have 3,000 units. How many units reach the primary consumers?	300
p16 #2	The primary consumers have 900 units. How many units reach the secondary consumers?	90
p16 #3	The producers have 80,000 units. How many units reach the secondary consumers?	800
p16 #4	The secondary consumers have 40 units. How many units did the primary consumers have?	400
p16 #5	The tertiary consumers have 7 units. How many units did the producers have?	7,000
p16 #6	The producers have 2,000 units. How many units do NOT move up to the primary consumers?	1,800
p17 #1	Producers make their own food using light from the sun.	TRUE
p17 #2	In a food chain, the arrow points toward the organism that is eaten.	FALSE
p17 #3	About 10 percent of the energy at one level moves up to the next level.	TRUE

Item	Problem	Answer
p17 #4	The fox is a producer in the meadow.	FALSE
p17 #5	If producers hold 1,000 units, the primary consumers get about 100 units.	TRUE
p17 #6	Decomposers sit at the top of the energy pyramid.	FALSE
p23 #1	The producers have 10,000 units. How many units reach the primary consumers?	1,000
p23 #2	The primary consumers have 300 units. How many units reach the secondary consumers?	30
p23 #3	The producers have 7,000 units. How many units reach the tertiary consumers?	7
p23 #4	The secondary consumers have 60 units. How many units did the primary consumers have?	600
p23 #5	The producers have 500 units. How many units reach the secondary consumers?	5
p23 #6	The primary consumers have 40 units. How many units did the producers have?	400
p24 #1	The producers hold 9,000 units. How many units reach the primary consumers?	900
p24 #2	Name one producer in the meadow food web.	Grass or the leafy plant.
p24 #3	What does an arrow in a food chain show?	Energy moving to the organism that eats (the arrow points to the eater).

Item	Problem	Mistake	What went wrong	Right
p18 #1	Producers hold 2,000 units. How many units reach the primary consumers?	Line 2	multiplied by 10 instead of taking 10 percent (0.10)	200
p18 #2	Producers hold 5,000 units. How many units reach the secondary consumers?	Line 2	took 10 percent of the producers again instead of 10 percent of the primary consumers' 500	50
p18 #3	Primary consumers hold 600 units. How many units reach the tertiary consumers?	Line 3	wrote the secondary consumers' number instead of the tertiary consumers' 6	6
p18 #4	Producers hold 8,000 units. How many units do NOT move up to the primary consumers?	Line 2	gave the amount that moves up, not the amount that does not (8000 - 800)	7,200

PREVIEW

Energy Flow Tracker

One student, every scored page. 92 items on 19 pages. Blank means not tried yet, never wrong. Keys: pages 26 to 29. Filled example: page 34.

Student _____ Teacher _____ Month _____

Page	Page type	Items	Right	Date	Notes
5	Producers, Consumers, Decomposers	4			
6	Words to Know	4			
7	Read and Answer	4			
8	Worked Example: The 10 Percent Rule	3			
9	Who Is It? Producer, Consumer or Decomposer	6			
10	What Does It Eat?	8			
11	Food Chain: Label It	7			
12	Food Chains: Fill the Gap	3			
13	Food Web: Read the Arrows	4			
14	Energy Pyramid: Label It	5			
15	10 Percent Rule: Go Up the Pyramid	4			
16	10 Percent Rule: Up, Down and Lost	6			
17	True or False	6			
18	Find the Mistake	4			
19	Cut and Paste 1: Build the Pyramid	6			
20	Cut and Paste 2: Producer, Consumer, Decomposer	6			
21	Short Answer	3			
23	Quiz	6			
24	Exit Tickets	3			

This month we are working on (your own standard or wording)

PREVIEW

Team Note

Use this page between team meetings or when a student moves classes, to hand off what changed without writing a note from scratch. Everything below is observable, with a blank for the number or the wording your team already uses.

Student _____ Team member _____ Date _____

Page type	Covered since last note (Y/N)	Items right	Still blank
Words and reading			
Sort			
Chains and web			
Pyramid and 10 percent			
Check			
Cut and paste			
Writing and quiz			

What I saw (observable, not a conclusion)

- Sorted ___ of ___ organisms into the right role without a prompt.
- Worked out ___ of ___ energy steps correctly (pages 15 and 16).
- Sorted ___ of ___ pieces into the right box (pages 19 and 20).
- Followed the arrows in a chain or web: yes / no / with a reminder.

Next step

- Next page or set: ___, because ___ (what you saw).
- What to try in another class or at home: ___.
- What to keep doing because it is working: ___.
- Anything for the team meeting to decide: ___ (this page records what happened, never a label or a plan).

Summary, in one or two sentences, for whoever reads this next

A filled-in line, for reference

"Worked out 4 of 4 energy problems on 10/17. Next step: use the worked example on page 8 and write each multiplication under the step." That is the detail this page is built for.

PREVIEW

Riley's Tracker (Invented Student)

Riley T. is invented; nothing on this page describes a real student. The blank tracker is on page 30.

Student: Riley T. (an invented student)

Teacher: Ms. Adeyemi (invented)

Month: October

Page	Page type and set	Items	Right	Date	Notes
5	Producers, Consumers, Decomposers	4	3	10/6	Missed the energy source
6	Words to Know	4	4	10/7	-
7	Read and Answer	4	3	10/8	Missed the decomposer question
8	Worked Example: The 10 Percent Rule	3	3	10/9	-
9	Who Is It? Producer, Consumer or Decomposer	6	5	10/10	Called the mushroom a consumer
10	What Does It Eat?	8	6	10/13	Mixed up the two omnivores
11	Food Chain: Label It	7	6	10/14	Missed what the arrow shows
12	Food Chains: Fill the Gap	3	-	-	-
13	Food Web: Read the Arrows	4	3	10/15	Counted arrows leaving, not arriving
14	Energy Pyramid: Label It	5	3	10/16	Wrote 1 percent
15	10 Percent Rule: Go Up the Pyramid	4	4	10/17	-
16	10 Percent Rule: Up, Down and Lost	6	4	10/20	Multiplied when going down by mistake
17	True or False	6	-	-	-
18	Find the Mistake	4	3	10/21	Fixed three of the four
19	Cut and Paste 1: Build the Pyramid	6	6	10/22	-
20	Cut and Paste 2: Producer, Consumer, Decomposer	6	-	-	-
21	Short Answer	3	-	-	-
23	Quiz	6	-	-	-
24	Exit Tickets	3	-	-	-

How to read it

Riley T. has done **13 of 19** scored pages and got **53 of 65** items right with no prompt. **4** pages were all right and **9** carry a note. Every number comes from the table.

What the table points to

The lowest page is Energy Pyramid: Label It (3 of 5). That is where the next practice goes. The 6 pages left blank are not tried yet, never wrong.

PREVIEW