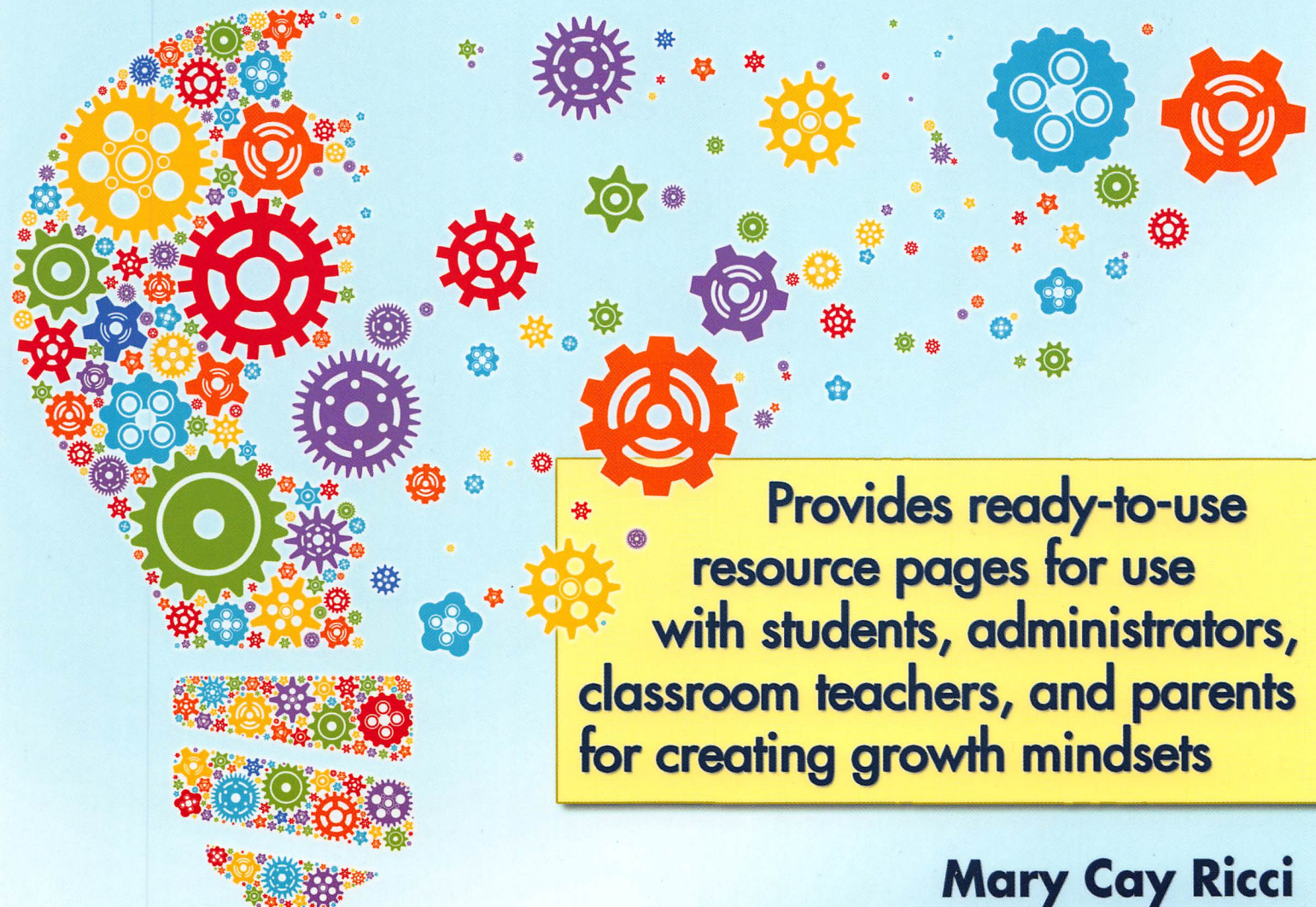


**READY-TO-USE  
RESOURCES FOR**

# **Mindsets in the Classroom**

**Everything Educators Need for School Success**



**Provides ready-to-use  
resource pages for use  
with students, administrators,  
classroom teachers, and parents  
for creating growth mindsets**

**Mary Cay Ricci**





## WHY IS CRITICAL THINKING IMPORTANT IN A GROWTH MINDSET CLASS CULTURE?

Chapter 4 in *Mindsets in the Classroom* emphasized the importance of critical thinking learning opportunities for all students as part of a growth mindset environment. The Critical Thinking Growth Mindset Project shared in *Mindsets in the Classroom* resulted in teachers raising expectations for students who were not yet achieving at grade level, but flourished in critical thinking opportunities. Through critical thinking games, teachers were able to observe students who typically may not be given the opportunity to demonstrate their developing cognitive abilities. Because the teachers had already played the games during a workshop (and many were challenged as evidenced by a few game pieces being tossed across the table), they were impressed with the level of success that the children demonstrated and it altered the expectations for these students. In addition to the critical thinking games that were used in the project, teachers were also taught the critical reasoning exemplars that are shared in this chapter. The critical reasoning opportunities not only served as a great neural workout for the students but also served as a catalyst toward higher teacher expectations.

All students must have daily opportunities to think critically. The following strategies can be viewed as a menu—consider the standard that is being taught and determine if any of these strategies could be used to preview or preassess the content, teach the standard, check for understanding, enrich the learning, build a conceptual understanding, or review or assess the standard.

### Feed-BACK

A critical thinking exemplar that builds on lessons learned from Jerome Bruner's (1961) Concept Attainment Model is a critical thinking strategy that I call "Feed-BACK." It is a strategy that helps students develop processes needed for deductive reasoning.

Feed-BACK was inspired by a vintage cocktail party game, bumping up the game play so that critical reasoning is required. As a child, when my parents had a party (and I spied from upstairs), each party guest who entered the house had a sticker placed on his or her back with the name of a person who was half of a popular couple or celebrity at the time: Barbie and Ken, Lucy and Ricky, Diana Ross, Marvin Gaye, etc. The guests were charged with trying to figure out the name on their back by asking questions of the other guests.

Feed-BACK takes it further—students are given the name of a person, a number, a geographic location, or an object on a sticker on their back and they must determine who or what is on their back by asking only questions that can be answered with a yes or a no. Resource 15: Feed-BACK Directions (p. 36) includes the steps for this critical reasoning strategy and Resource 16: Feed-BACK Labels (p. 37) provides a sample set that will enrich and extend the conversation about growth mindset. The people listed on the sample set are people who have overcome adversity, demonstrated resiliency and grit, experienced failure, and/or demonstrated a growth mindset. This sample set is recommended for grades 4–12, however I have used the Feed-BACK strategy beginning with kindergarten students—with modeling and sometimes sentence stems. For younger students, the stickers on their backs could have numbers, shapes, pictures of story characters, etc.

At the end of or during the debriefing process, teachers may also introduce or reinforce the concept of deductive reasoning by asking the students what kind of questions they asked at the beginning of the process. Most students begin with more general questions: "Is my character a girl?" or "Am I alive?" As they learn more about their character or word, questions become more specific.

### Concept Placemats

Concept placemats use images that share a common attribute to guide students toward developing a concept. Is there a concept that you are teaching that students may be able to develop more deeply using images? This strategy allows students to generate many possibilities about sets of images and it is structured so that students have to first look at pairs of objects to find many different common concepts, then groups of three until they may look at every image together. Take a look at Resource

## Why Is Critical Thinking Important?

17: Concept Placement for Concept of Three (p. 38), created for kindergarten or first-grade students. After asking the students for two images that share a common concept, some of the responses might include:

- ⊗ The bike and the magic genie lamp. They are both metal.
- ⊗ The clover and the genie lamp. They both give wishes/good luck/are magic.
- ⊗ The hen and the pig. They both can be found on a farm.
- ⊗ The binder and the circus. They both have three circles.

After asking for three things that share a common concept, student responses might include:

- ⊗ The hen, the pig, and the elephant. They are all animals/they all have feet.
- ⊗ The three-leaf clover, the bike, and the circus. They are all found on the ground.

At some point during this exercise, ask the students to really look at the details in each image. Pose questions such as: Why is the hen wearing a hat? Why does the hen have a mustache? I wonder where this hen lives. (Is it a French hen?)

Ask students to think about all of the connections that they have made so far and think of a common concept among all of the images. If someone comes up with the concept of three, ask for an explanation of the student's thinking. For example, you might hear:

- ⊗ The pig is part of the Three Little Pigs.
- ⊗ The bike has three wheels.
- ⊗ The clover has three leaves.
- ⊗ The hen is part of three French hens.
- ⊗ The binder has three rings.
- ⊗ The genie lamp will grant three wishes.

If no one comes up with the concept you developed, acknowledge any other concepts that work and invite the students to think about it during the day so that it can be revisited the next day. You can also add an additional image such as a birthday cake with three candles.

This can be projected on a Smart Board or each student can have his or her own placemat. Resource 18: Concept Placemats: A Step-by-Step Guide for Teachers (p. 39) provides directions about how to develop a concept placemat. Two additional Concept Placemat samples for older students are also provided. In Resource 19 (p. 40), the concept being developed is growth, and in Resource 20 (p. 41), the concept being developed is resiliency.

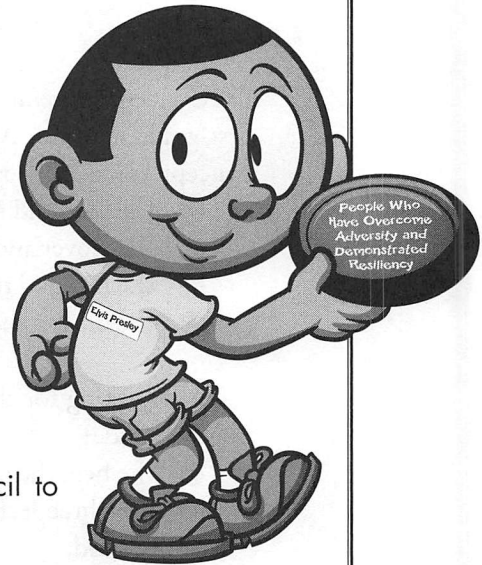


# RESOURCE 15

## Feed-BACK Directions

### Directions

- Each student will have the name of a famous (or semi-famous) character/person on their back. The challenge is to figure out who is there.
- Each student may ask questions that can be answered with a "yes" or a "no." They may ask another student up to two questions, then move on to someone else.
- If students want to, they may use paper and pencil to write down what they have learned.
- If someone asks a question about the person on their back, and the student answering is not sure of an answer, they should say that they do not know. (Instead of giving incorrect information.)
- As each student goes through the process of solving the mystery of who is on their back, they should be aware of the kind of thinking that they are using.
- At the end of the given time, (when at least half know who they are) gather students together and discuss the process. Ask the students who do not know yet to keep the sticker on their back because the group may be able to suggest additional questions for them to ask.
- Begin a discussion by asking the following: By show of hands ask: How many of you know who is on your back? How many can describe the person, but cannot think of the specific name? Who needs some ideas about what questions they can ask next?



### Debrief the Process

- Did anyone have a specific strategy that you used? Explain.
- What was the most valuable question that you asked?
- In addition to asking the questions, did anything else help you?
- What kind of thinking did you do?
- Is there anything that you would have done differently?

**Feed-BACK Labels**

People Who Have Overcome Adversity, Demonstrated Resiliency and Perseverance, Learned From Setbacks, and/or Demonstrated a Growth Mindset

Write the names of these people on blank labels and carefully place a label on each student's back so that they cannot see the name. Choose names that are best suited to the age group. After the strategy, students may then research what each person has overcome, what setback he or she has had in life, and ways he or she persevered and demonstrated a growth mindset.

**Jim Carrey**

**Stevie Wonder**

**Demi Lovato**

**Bethany Hamilton**

**Elvis Presley**

**Halle Berry**

**Vera Wang**

**Jennifer Lopez**

**Jay-Z**

**Bill Gates**

**Ed Sheeran**

**Simon Cowell**

**Thomas Edison**

**Michael Jordan**

**Oprah Winfrey**

**Dr. Seuss**

**J. K. Rowling**

**Beethoven**

**Babe Ruth**

**John Grisham**

**Soichiro Honda (car maker)**

**Sidney Poitier**

**Harrison Ford**

**The Beatles**

**James Dyson (vacuum)**

**Vincent Van Gogh**

**Agatha Christie**

**Lucille Ball**

**Ulysses S. Grant**

**Abraham Lincoln**

**Eminem**

**Martha Stewart**

**Donald Trump**

**R. H. Macy**

**Colonel Sanders**

**Steven Spielberg**

**Mark Cuban**

**Charles Darwin**

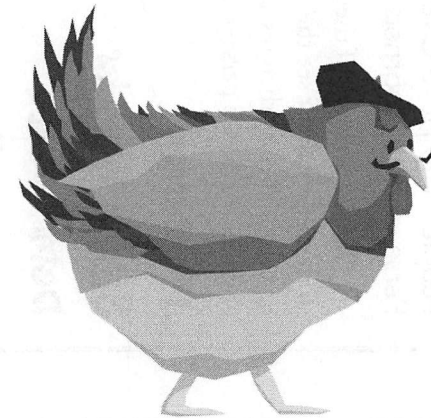
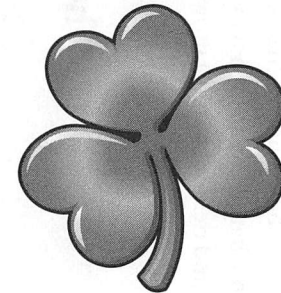
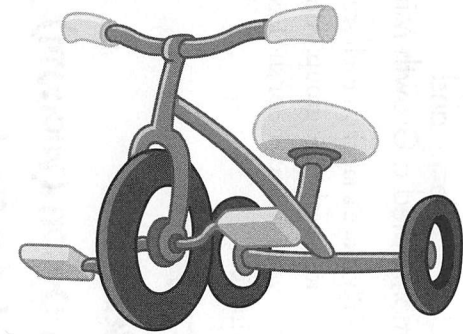
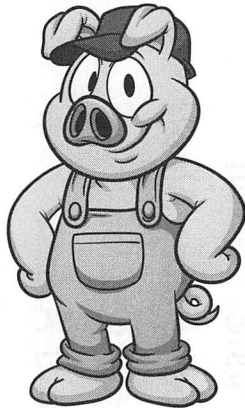
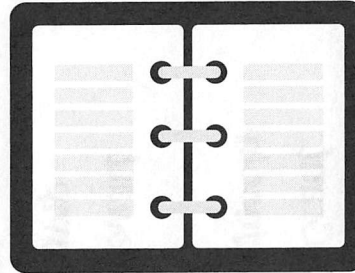
**Louisa May Alcott**

**Jack London**

**Fred Astaire**

**Steve Jobs**

**Nelson Mandela**

**Concept Placemat**

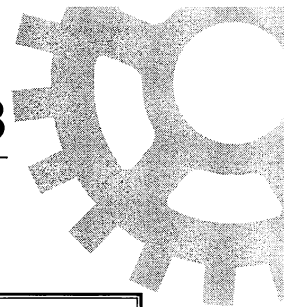
Find pairs of objects that share a common concept.

Find 3 objects that share a common concept.

What concept do all of these images have in common?

Be prepared to tell why.





## Concept Placemats: A Step-by-Step Guide for Teachers

Concept formation relates to making connections, seeing relationships between items of information, and defining a concept from them. Concept formation is a key skill required for learning of new ideas.

Is there a concept based on a content area that is being studied that you would like your students to form using images? Choosing a more abstract concept works best. For example, "relationships" works better than "pets."

- Once you choose a concept, brainstorm ideas about what kinds of images might represent that particular concept.
- Develop the concept placemat with the computer, open a document, and add images. Insert pictures using clip art or images found online (three to six images are usually enough to build a concept).
- The placemat can be projected or each student can have a copy of the placemat.

### Using the Placemat

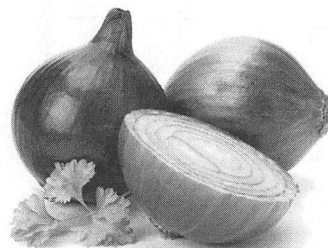
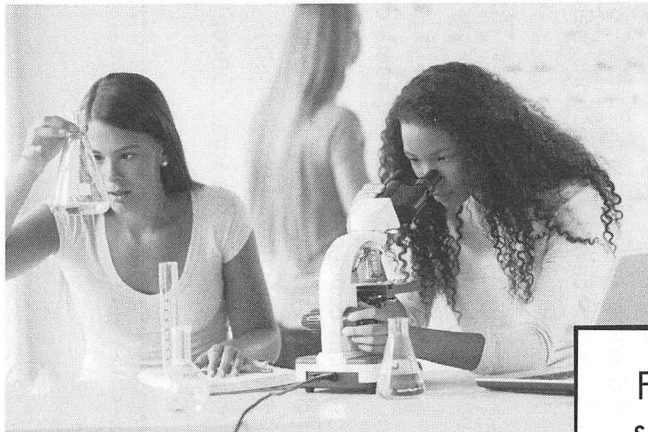
Within an instructional sequence, determine how the placemat will be used: As a pre or formative assessment? Activator? A vehicle for learning new information? A springboard to a discussion? To enrich and extend a concept? Something else?

Ask students to look at the placemat quietly. Give everyone a set time (1–2 minutes), then ask for ideas (otherwise the "quick thinkers" dominate) using questions similar to these:

- Who can find two things that are the same in some way? (Take all student responses. During this time, observe/listen for unique connections between the images.)
- Who can find three things that are the same in some way? (Take all student responses. During this time, observe/listen for unique connections between the images.)
- Let's look for some things that are the same among all of the images. (Take all student responses. During this time, observe/listen for unique connections between the images.)
- Let's hear some ideas for adding more things that also share the same concept.
- Let's think about why I might have chosen this concept for our class. What do you think we will be talking about? What do you think we are going to learn about? (This question should ask about the content connection of the strategy).
- Any ideas for adding an additional image that shares the same concept?

Note. Adapted from *Mindsets in the Classroom* (pp. 129–131) by M. C. Ricci, 2013, Waco, TX: Prufrock Press. Copyright 2013 by Prufrock Press. Adapted with permission.

### Concept Placemat

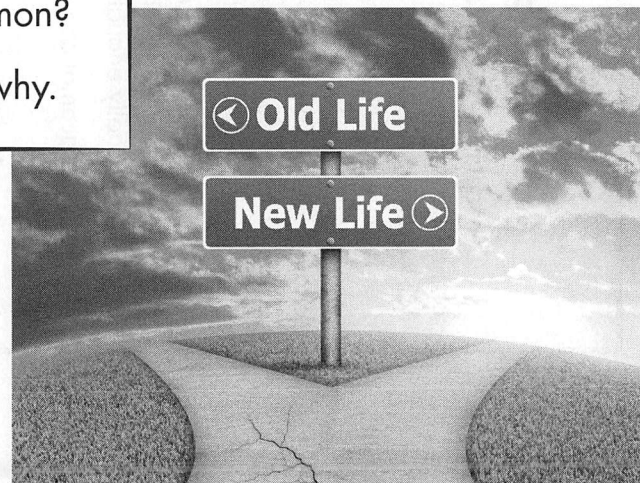
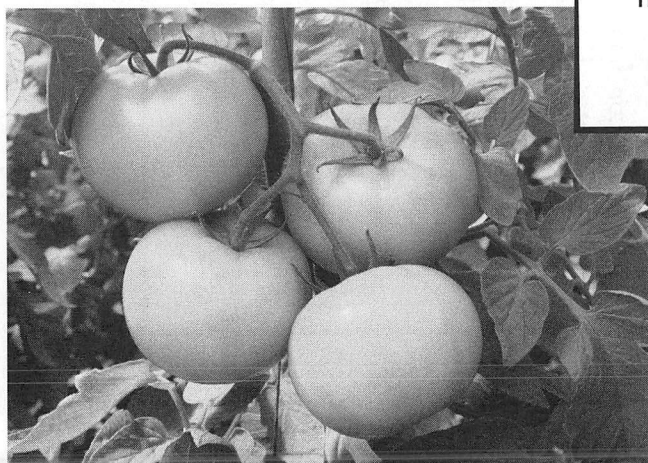


Find pairs of objects that share a common concept.

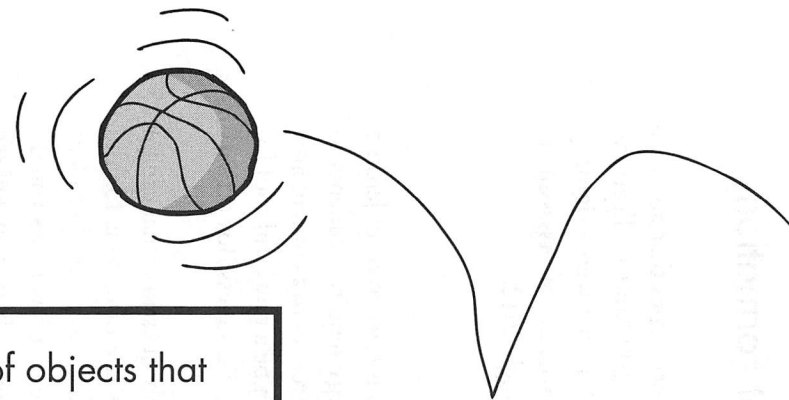
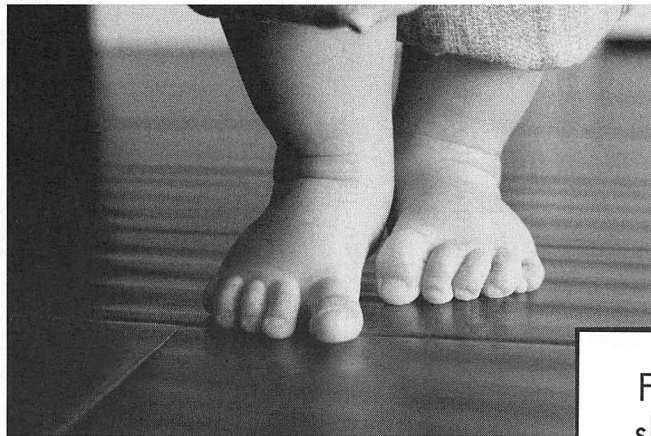
Find 3 objects that share a common concept.

What concept do all of these images have in common?

Be prepared to tell why.



## Concept Placemat

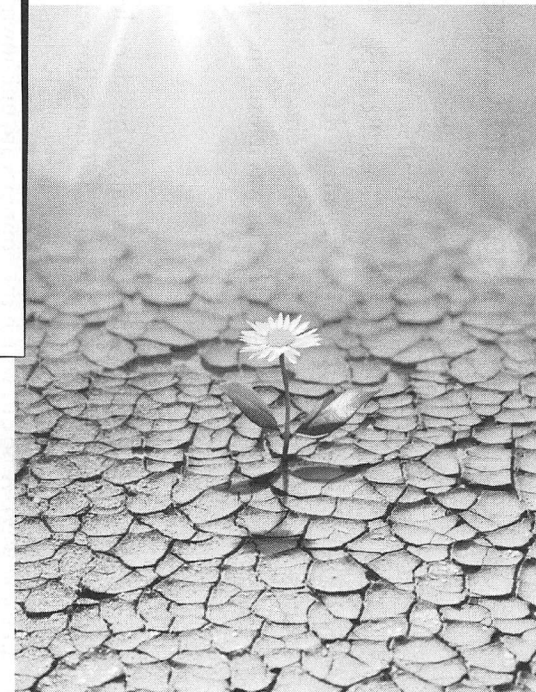
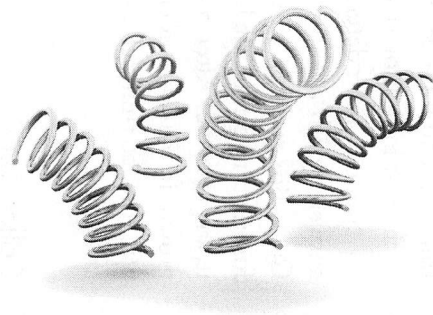


Find pairs of objects that share a common concept.

Find 3 objects that share a common concept.

What concept do all of these images have in common?

Be prepared to tell why.





### Concept Development and Concept Formation

The following resources give more detail for two of the strategies that are mentioned in *Mindsets in the Classroom*: Guess Box (pp. 107–109) and Collections (pp.120–122) These two strategies are adapted from exemplars that were originally created for Montgomery County Public Schools, MD, Program of Assessment, Diagnosis and Instruction (PADI) that was in existence through 2012.

#### Guess Box

Like Feed-BACK, the Guess Box strategy builds on lessons learned from Jerome Bruner’s Concept Attainment Model. The Guess Box strategy requires students to determine what item is in a box (the item is chosen because it relates to a content area in some way). A box in which the contents are unknown can be a powerful tool for thinking, and it is very important that the facilitator not end the Guess Box activity at the first indication that students know what is in the box.

Students must determine what is in the box by asking only questions that can be answered with a yes or a no. Resource 21 (p. 44) includes the directions for the Guess Box strategy, and Resource 22 (p. 46) provides some growth mindset ideas for items to put in the box. A Guess Box can feel clumsy the first few times you do it, so persevere! After you and your students go through a few of them, you will see growth in the way students ask questions and reason. You will also see growth in the way you determine clues and respond to questions that do not clearly have yes or no answers.

#### Collections

A collection of objects assembled around a specific concept can be used to help students develop classification skills, analyze attributes of objects, discover relationships between items, and form a concept. There are two kinds of collections, **serial** and **revealed**. In a revealed collection, all objects are displayed at the same time. If the common link between the objects is obvious, a revealed collection works well. Focus would be on finding subcategories and contrast within the group. A set of toy animals or models of transportation that share a connection would make an appropriate revealed collection.

A serial collection is used when items are displayed one at a time. The collection should not be formed around anything to do with words such as things that begin with a “B” or “compound words.” It is about the attributes of the items that require deep critical thought.

The order of each item revealed is very purposeful. After each item, the teacher records students’ predictions on index cards or sticky notes as to what the collection may be focused on. After each item is revealed, the teacher reviews all of the predictions that have already been generated. Students determine if the card/sticky note

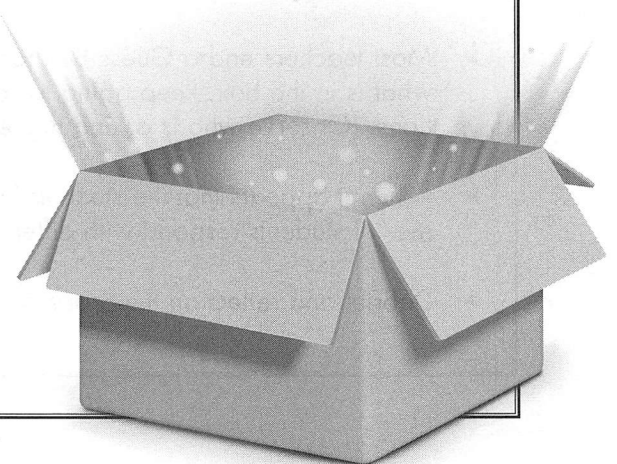
## Guess Box Directions

A box in which the contents are unknown can be a powerful tool for thinking. The item in a Guess Box should be chosen because of how it relates to a content area. It can be also used as a pre- or formative assessment. Prior to the lesson, set up two columns on the board or chart paper. At the top of one column, write "Attributes of a \_\_\_\_\_". At the top of the second column (this column can be small) put a "?".

First, tell the students that you have something in the box and their job is to find out what is in it. They may only ask questions that can be answered with a "yes" or "no." The "no" answers are just as important as the "yes" answers because they give us very valuable information about what is in the box.

On the chart paper, record the "positive attributes" that are learned through the questions. (Don't list "not yellow," "not round" etc.) At the end of the strategy, a list of words and phrases that describe the item in the box will be already charted for the students to use.

There is no limit as to how many questions can be asked. In fact, when many of the students know what is in the box is when the questioning becomes higher level and the teacher recognizes "sparks" in his or her students.

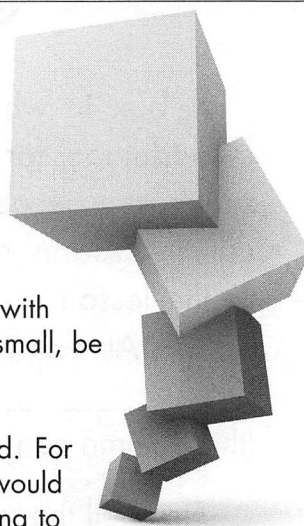


# RESOURCE 21

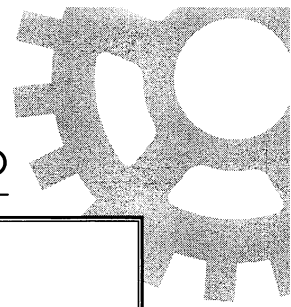
## CONTINUED

### Guess Box Guidelines

- Be sure to tell the students if you have the real thing in the box or a model/picture of the real thing. (With a model/picture, questions are asked/answered as if it is the real thing.)
- Have a few clues ready if you need them. Always begin with one clue before the questioning begins. If the group is small, be more generous with your clue.
  - The clue should have *nothing* to do with the word. For example, if you had a pumpkin in the box, you would never say: "It begins with a P." The word has nothing to do with the attributes of the object.
- Only record the positive attribute (the "yes" answers).
  - Example: edible, fruit, round, orange, white, green, seeds, grows on a vine, can be carved, see them mostly in the fall, grows in a patch, has pulp, turned into a carriage in a fairy tale, some are too heavy to carry, you can cook the seeds
- If students ask, "Is it big? Soft? Heavy?" and so on, ask them to compare it to something by saying, "As heavy as what?" or "As soft as what?"
- Occasionally a question is asked that the teacher cannot answer or feels that the answer would mislead the students. In this case, write the question under the "?" column to discuss with students after the object is revealed.
- When it appears that some students have a good idea about what might be in the box, ask them, "How many of you can come up with three (or two) new questions that I can answer 'yes' to?" (This requires students to think more critically about what it is the box.)
- Most teachers end a Guess Box too soon. When it appears that most kids know what is in the box, keep going to see who can come up with more in-depth questions. (Observe who is asking higher level questions.)
- When it appears that the students know what is in the box, say "1-2-3 whisper to me." If students respond with different items, have them ask more questions.
- Debrief and reflect on the process.







### **Guess Box Debrief/Reflect on the Process**

It is very important to debrief and reflect on the process after the item is revealed. Ask students the following:

- What question helped you (the most) to figure out what was in the box?
- Who asked that question? Why did you ask it?

Ask students why they asked specific questions. Discuss with students which questions were important to them and why. What kind of information was gained by these questions?

- What are the three most valuable attributes? In other words, if we could only choose three of these words or phrases to describe this object, what would they be?

On the chart paper or SmartBoard, circle or highlight the attributes that the students think are most important in describing the object.

If students disagree, discuss the information that was gained with each attribute and come to consensus.

Share with students why you chose that particular item for the Guess Box. Link back to what they have learned or will learn.

## Ideas for Items to Put in a Guess Box

### Growth

Item	Suggested Clue(s)
Seed	This is something that you might find outside.
Small plant	Color is an important factor.
An unripe strawberry or tomato	It is edible. (The goal is strawberry and tomato; discuss the fact that they are not ripe after the item is revealed.)
A growth chart	This is something that you hang up. OR This is something that you might find in a doctor's office.

### Failure

Item	Suggested Clue(s)
A school paper with an "F" on top	This is something that does not make you happy.
Post-it notes (Invented when another project failed)	This is made of paper.
Chocolate chip cookie (Invented by mistake)	This is something that you can hold in your hand.
Sandpaper (grit)	This is something that has a rough surface.

### The Brain

Item	Suggested Clue(s)
Rubber band (neuroplasticity)	This is something that you might find in an office.
Sponge (See <i>Mindsets in the Classroom</i> pp. 108–109 for more details)	This is something that you might use when you clean.
Neuron	This is something that is never alone. This is something that can be found inside of your body.  (Use this in a guess box after they have been introduced to neurons. It can be used as a group formative assessment to see what they remember about neurons.)

## Why Is Critical Thinking Important?

should stay in as a possibility or be removed. If any student can justify why it should stay in, leave it in. You can also bring back any previous categories if a student discovers a common attribute that was not previously mentioned.

As you plan the order of the collection, be sure that the first few items share several common attributes—color, shape, purpose, etc. After many ideas are generated based on these items, create some conceptual conflict by adding an item that does not share many of the same attributes. Be sure to ask for justification for responses that are not obvious. An example of how this might look is included below.

Order of collection:

1. *A checkbook or printout of a checking account from online banking.* Possible responses: things to do with money, things in a purse, things you have to sign, things with numbers. (Students will generate a lot more ideas.)
2. *A cookbook (choose one that has healthy recipes).* What might be eliminated: things to do with money, things you have to sign, things that go in your purse (in some cases a student will bring up the idea that a cookbook could go in your purse so when you are at the grocery store, you can get the ingredients for a recipe). New ideas: Things with pages, things with a cover, things that are rectangular.
3. *A children's book (ballet or ice-skating should be the content).* What might be eliminated: Things in a purse (although some will argue that moms keep their kids' books in their purse, in which case, leave it in). New ideas: Things made of paper, types of books, things that begin with the letter "B."
4. *Three wooden blocks stacked/balanced.* These blocks will cause conceptual conflict for most of the students. What might be eliminated: Books, things made of paper, things in a purse, things with pages, things with a cover, things with numbers. New ideas: Things made from a tree, things that have different parts, things that are becoming obsolete.
5. *An animal on a unicycle toy or a picture of a unicycle.* This will cause conceptual conflict for the rest of the students. What might be eliminated: Things made from a tree, things that start with "B." New ideas: Things for a family, Things that represent different generations.

The last item in this collection is the validator. The validator should help solidify what the common element of the collection is. For this collection, the validator could be any of the following:

- ⊗ Any toy that requires balance
- ⊗ A picture of a balance beam
- ⊗ A balance scale
- ⊗ A top or bike



## Ready-to-Use Resources for Mindsets in the Classroom

It is possible that you have some categories remaining that still work, acknowledge these if you do, then share that the concept that you built the collection around is “balance.” Ask students to explain the concept with each item:

- ⊗ *Checkbook or printout of a checking account from online banking*—a bank account needs to be balanced (Do not include this item for young students who have no background knowledge about a checkbook.)
- ⊗ *Healthy cookbook*—balanced diet
- ⊗ *Kids book about ballet or ice-skating*—Ballet and ice-skating require balance; for teachers, the concept could be balanced literacy
- ⊗ *Blocks*—They are set up in a way where they are balanced
- ⊗ *Unicycle*—Requires balance not to fall off

Ask students for ideas for additional objects that can be added to the collection. Talk about the concept of “balance” and how it can be applied in a variety of ways. For older students, ask for nonexamples—items that would not fit into the collection.

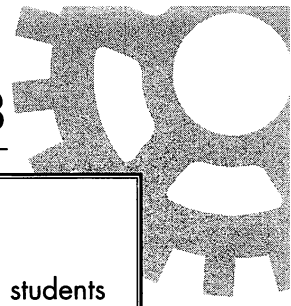
The balance collection can be a vehicle for leading into a math unit that involves balance, balancing equations, or an introduction to algebra. It could also be used to introduce a literary piece that has “balance” as one of its themes.

Resource 23: Collections (pp. 49–50) and Resource 24: Ordering a Serial Collection (pp. 51–52) can help your thinking as you plan for a serial collection.

## Critical Reasoning Games

The power of games in learning has been getting more and more popular in the education field. Even though much of the chatter is about digital gaming, a similar outcome can occur with reasoning games that students can hold in their hands. As mentioned above, critical reasoning games became an important part of the Critical Thinking Growth Mindset project and the way they were introduced into the learning process became a critical component. A few guidelines for choosing games to build critical thinking skills:

1. *Identify games for your level of students that are not reading or math skill dependent.* Choose nonverbal games that may build quantitative, analogical, deductive, or inductive reasoning. My favorites include these ThinkFun Games (which can be purchased at <http://www.thinkfun.com>):
  - a. Grades K–1: Swish Jr, Rush Hour Jr, and Robot Turtles
  - b. Grades 2–Adult: ShapeOmetry, Chocolate Fix, Brick-by-Brick, Swish, Square-by-Square, Gravity Maze, Laser Maze, TipOver, Rush Hour, and Rush Hour Shift



## Collections

A collection of objects assembled around a specific concept is used to help students develop classification skills, analyze attributes of objects, and discover relationships between items. It is also a powerful tool for practicing problem-solving skills.

There are two kinds of collections, **serial** and **revealed**. In a revealed collection all objects are displayed at the same time. If the common link between the objects is obvious, a revealed collection works well. Focus would be on finding categories and contrast within the group. A set of toy animals or models of transportation would make an appropriate revealed collection.

A serial collection is used when items are displayed one at a time in a purposeful manner. After each item, the teacher records students' predictions as to what the collection may be focused on. The last item in this collection is the validator. The validator should help solidify what the common element of the collection is.

The order in which the objects are revealed is important. Start with the objects that will generate many possibilities and gradually reveal items with more specificity.

### Serial Collection: Things That Were Important to You in the Past

The items are dependent on the student's age—a primary student's collection will look different than a high school student's collection. The sample below could be used with K–2.

1. Bring in the following suggested items in a bag that the students cannot see through or in to:

- Teddy bear (or Beanie Baby)
- Scrap of flannel or "blankie"
- Pacifier
- A baby board book
- Birthday card or candle for first birthday
- Framed picture of a family with a baby/toddler
- Preschool picture or diploma

Optional items:

- Lock of hair
- Picture or model of a crib, stroller, or playpen

2. Introduce the collection by asking:

- Do you collect anything?
- Why do you collect those things?
- What are some ways that you can add to your collections?



## RESOURCE 23

### CONTINUED

#### Collections, *continued*

Then tell students: *Today I brought in a collection of things. There is something the same about everything I have in my bag, and I would like for you to try to think of what that may be. I will take the items out one at a time and I'll write down your ideas on these cards (index cards or sticky notes). Let's look at the first item in my collection.*

3. Take the teddy bear or Beanie Baby out. Ask students: *What do you think I may have a collection of?* Record student responses on cards. Possible responses might include bears, stuffed animals, toys, soft things, things that start with "B."
4. Take out the blankie. Tell students: *Let's look at our cards to see if these ideas still work.* Turn cards over if they don't work; have students explain why. Ask: *What other ideas do you have about what this may be a collection of?* Record their responses.
5. Take out the pacifier. Tell students: *Let's look at our cards to see if these ideas still work.* Turn cards over if they don't work; have students explain why. Ask: *What other ideas do you have about what this may be a collection of?* Record their responses. Possible responses might include: things that babies use, soft things, things you sleep with, things that make you happy.
6. Continue with this process until all items in the collection are shown.
7. Acknowledge cards (responses) that are still showing: *All of these ideas you had for my collection work well. Any one of them would work. Good effort and good thinking! Let me tell you what I had in mind when I put this collection together for you. I made this a collection of things that may have been important to you in your past.*
8. Debrief the process with questions like these:
  - a. Why would these things be important?
  - b. Let's look at this collection. What was important to you in the past? Why? Why are they no longer as important as they once were?
  - c. Are any of these things still important to you? Why?
  - d. If you could add something to this collection, what would it be?
  - e. Why did I put this collection together?
9. Link the collection to an area of study, psychosocial skill, or P21 skill. Possible content connections include:
  - a. Social studies—learning about the past
  - b. Reading/LA—historical fiction

# Ordering a Serial Collection

Concept of collection:

Possible items in my collection:

The first 2–3 items should share many of the same attributes (think about shape, material, purpose, etc.)

A possible order for this collection:

1. \_\_\_\_\_

Possible student responses:

2. \_\_\_\_\_

Possible student responses:

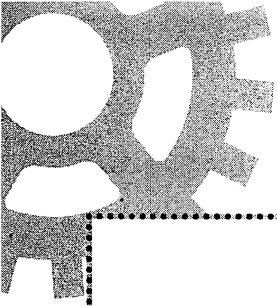
3. \_\_\_\_\_

Possible student responses:

4. \_\_\_\_\_

Possible student responses:





## RESOURCE 24

### CONTINUED

#### Ordering a Serial Collection, continued

5. \_\_\_\_\_

Possible student responses:

6. \_\_\_\_\_

Possible student responses:

7. \_\_\_\_\_

Possible student responses:

Which object (do you think) will cause conceptual conflict?

Which object would you select as a validator?

2. *Provide a professional learning opportunity for teachers.* Introduce or review components of neuroplasticity and critical thinking. Introduce each game separately and let the teachers play the games after each introduction for about 10 minutes as partners or individually. Observe behaviors during this time and listen for fixed mindset statements, such as “I am just not a visual-spatial person.” Share what you observed and relate it back to growth mindset.
3. *Provide teachers with a timeline and ideas for introducing each game into their classroom.* Some of the games (Rush Hour, Laser Maze, and Chocolate Fix) can be taught by projecting the online version, found at <http://www.thinkfun.com/playonline>.
4. *Students will keep track of their games with individual game-trackers.* See Resource 25: Game Tracker (pp. 54–55) for an example. Each time they play, they should repeat the last successful level in order to warm up their neural networks.

Students may participate in games during times that the teacher determines. For example, a math teacher may set up ShapeOmetry in his class as an anchor activity that develops quantitative reasoning and perseverance, practices found in the Common Core State Standards for Mathematical Practice. Students can go to the anchor individually or with a partner if they have finished classwork early or if the math teacher is working with another group of students.

Elementary students can access the games during inside recess, as part of small-group math rotation, and as anchor activities.

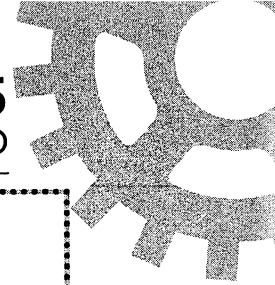
By allowing students of all levels to build cognitive abilities through these strategies, you allow them to witness their own growth, which is instrumental in building a growth mindset classroom culture.

## Game Tracker I Played These Games!

Name: \_\_\_\_\_

When you go back to a game, repeat the last level that you did and then move on.

ShapeOmetry		Chocolate Fix		Rush Hour		Brick by Brick		Swish	
									
Date	Last Level	Date	Last Level	Date	Last Level	Date	Last Level	Date	Last Level



## Game Tracker I Played These Games!

Name: \_\_\_\_\_

When you go back to a game, repeat the last level that you did and then move on.

Game Name:		Game Name:		Game Name:		Game Name:		Game Name:	
Date	Last Level	Date	Last Level	Date	Last Level	Date	Last Level	Date	Last Level

