COOPERATIVE LEARNING

The Structural Approach

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Understandings

- Learning is a social process.
- Interaction can generate understanding and enhance retention for all learners.
- There are multiple cooperative structures for different purposes, and it is helpful to begin with simple structures for asking questions before progressing to more complex structures.
- A common language, clear directions, modeling, practice, and group processing promote effective classroom management.
- Essential elements of cooperative learning include: positive interdependence, individual accountability, equal participation and simultaneity.
- Roles that are effective promote the essential elements. *(Material handler, reader, writer, and spokesperson, often do not.)*

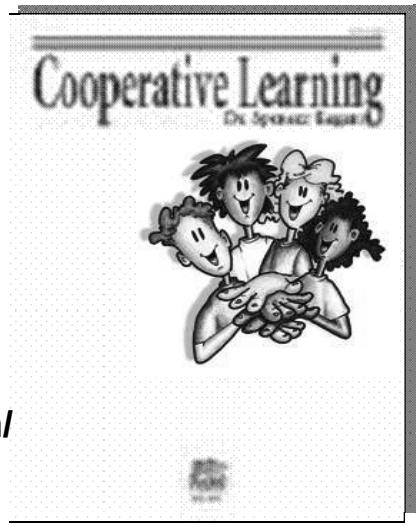
Definition of Cooperative Learning

- Cooperative learning is defined by a set of processes which help people interact together in order to accomplish a specific goal or develop an end product which is usually content specific.
- Collaboration is a philosophy of interaction and personal lifestyle whereas cooperation is a structure of interaction designed to facilitate the accomplishment of an end product or goal.
- Source Ted Panitz (1996) “A Definition of Collaborative Vs. Cooperative Learning”

The Structural Approach to Cooperative Learning

"The structural approach to cooperative learning is based on the creation, analysis and systematic application of structures, or content-free ways of organizing social interaction in the classroom. Structures usually involve a series of steps, with proscribed behavior at each step. An important cornerstone of the approach is the distinction between "structures" and "activities". Quoting Spencer Kagan in previous source.

Spencer Kagan's Structural Approach to Cooperative Learning



http://www.kaganonline.com/

Greater Retention for all Learners

People retain:

- 10% of what they read 
- 20% of what they hear 
- 30% of what they see 
- 50% of what they see and hear  
- 70% of what they say 
- 90% of what they say as they do or teach something.  

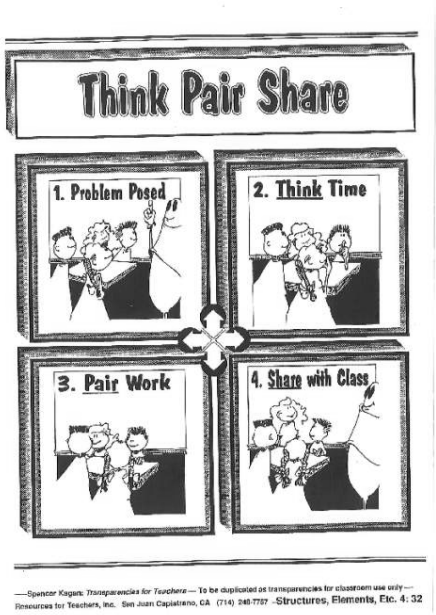
Source: E. Dale

Think

What questions do you have about using cooperative learning?

Note:

Begin with Think Pair Share. It is the simplest and fastest to use.



THINK-PAIR-SHARE

EXAMPLES:

- How can you apply this cooperative structure?
- Why do you think it is important to learn ___?
- How do you think ____ should resolve the problem?
- What do you think is the next number in the pattern? Why
- What do you think will happen next in the story/experiment/process?
- Do you think the character should take ___ action? Why or why not?
- What do you think is the most difficult part of this math problem?

SUGGESTIONS for Think-pair-share

- Pre-identify partners to avoid wasting time or having a student left out.
- Use 7-10 seconds of wait-time after the question.
- Ask students to pair only after they have time to think.
- Don't give too much time for partner sharing or students start to get off task.
- Check to see if all got a chance to talk. (Thumbs-up).

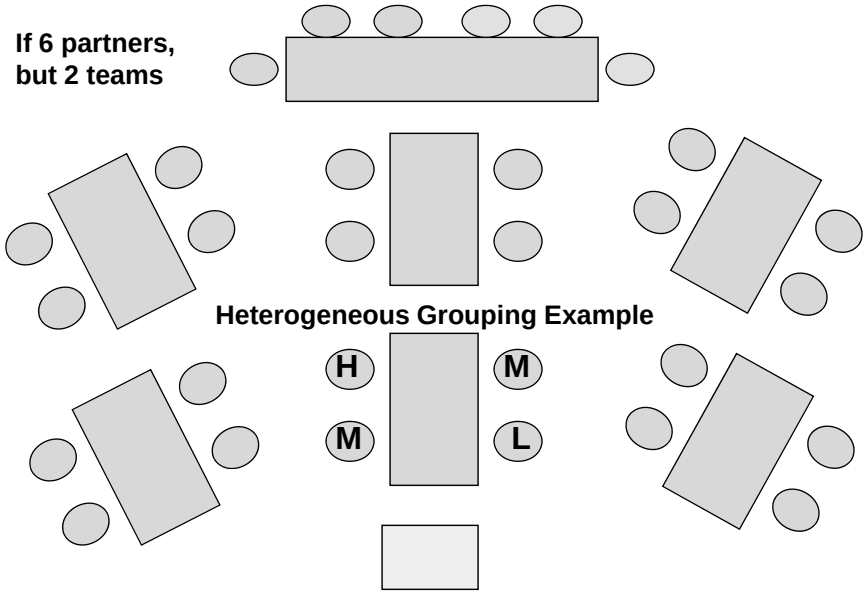
  If you have an extra student, check with the group of 3 to see if each had time before proceeding.
- Give sample sentence frames, with the easiest first.
- Use the structure often, even with very small groups.
- Students also benefit from just thinking and pairing even if no one shares with the whole class.
- Students call on each other during whole class sharing.

Cooperative Learning

Suggestions for an effective beginning

- Start with pair work.
- Provide tasks where all students can be involved and successful.
- Do team-building and class-building activities that model procedures and preview skills for academic tasks.
- Provide explicit directions and model all expected behaviors.
- Focus on a social skill, include student processing and teacher feedback on observed behaviors .
- Progress from simple to more complex cooperative structures.

If 6 partners, but 2 teams



Teams of 4, face each other and are able to see the front without turning around.

Essential Elements of Cooperative Learning

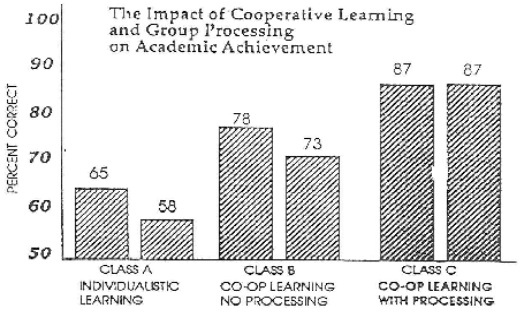
Positive Interdependence

Individual Accountability

Equal Participation

Simultaneity

GROUP PROCESSING ~



Focus on One Skill at a Time

Active Listening

Say	Do
That's a good idea.	*Refrain from interrupting.*
What do you mean?	*Look at the speaker.*
I agree.	*Take notes.*
I think so to.	*Use appropriate facial expressions.*
Oh, I see.	*Refrain from texting on cell .*
Are you saying ____?	*Refrain from fidgeting.*
That's happened to me to.	

Record examples of what students say and do. Give feedback.

One student moved to be able to face the speaker better.

The speaker made eye contact with everyone, so it was easier for all to listen.

It is important to mention eye-contact with all team members because low status students often don't get eye contact from others. Focus only on the positive behaviors, so the students become their own models.

1. Ask a question all students can answer. Be sure there are LOTS of answers.

2. Students take turns sharing ideas around their group. They keep going until time is called. If anyone is not ready s/he can respond to what someone else said or asks a question about the topic.

3. Call a number. Students with that number in the group stand to share one idea from the group, each group sharing a different idea.

ROUNDROBIN

EXAMPLES:

- Roundrobin examples of how you can use roundrobin in your class.
- Roundrobin what do you know about ___?
- Roundrobin identify ___ in the picture(s), describe what is happening or explain the process represented.
- Roundrobin retell what is happening on each page of the story. Older learners roundrobin a story based on elements of a plot line.
- Roundrobin the steps of a process, an experiment, or a construction project.
- Roundrobin place images or words (written in large font) in an organizer.

SUGGESTIONS for Roundrobin

Provide visual support as needed.

After think time, call a number to start, so it's not always the same person starting and to save time.

Tell them how much time they have and say, "Go".

Pass around a pencil or "your turn" symbol as the students take turns.

Provide sentence frames to model language.

Give students the option to respond or ask a question if they don't have a new idea.

If someone in the team can translate, let a student use his/her own language to share.

Make them accountable to the whole class by asking one person to stand and share an idea from the group.

Big Idea: My actions can protect others.

ISBE Social and Emotional Learning Standards

Goal 3: Demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts.

A: Consider ethical, safety, and societal factors in making decisions.

- **3A.1b.** Identify social norms and safety considerations that guide behavior.
- **3A.2b.** Demonstrate knowledge of how social norms affect decision making and behavior.

Big Idea: My actions can protect others.

ISBE Social and Emotional Learning Standards

Goal 3: Demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts.

Learning Standard

A: Consider ethical, safety, and societal factors in making decisions.

Early Elementary	Late Elementary
3A.1b. Identify social norms and safety considerations that guide behavior.	**3A.2b.** Demonstrate knowledge of how social norms affect decision making and behavior.

Look at the pictures of common hazards.

Roundrobin take turns answering the questions:

Who is doing what in the picture? (Or describe the picture.)

What is the danger in the picture?

_____ is dangerous.

What are possible consequences?

If _____, then _____could ____

How could this problem be avoided?

This problem could be avoided by _(verb)ing _____.

Your Classes

- Roundrobin:
  - Ways you are using cooperative groups in your classes,
  - Your suggestions for implementation or important changes you have made.

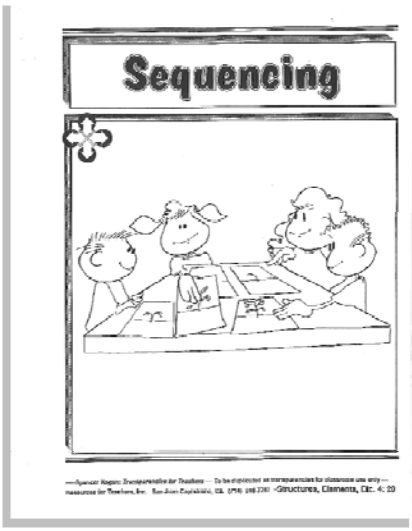
Example: I now have students call on each other rather than my calling on them. It has enhanced their engagement, and their conduct is more scholarly.

Roundrobin try to sequence the steps of a story, process or cycle **before** learning them to share prior knowledge, make predictions and engage learners.

During explanation or reading, compare prediction and revise as needed.

After explanation, roundrobin sequence again. Use language modeled.

Note: If sequencing sentences, rather than pictures, it is best done as a partner task.



Note: To use roundrobin, the pictures and words need to be large enough for all to see.

Differentiation ideas for sequencing:

Combine both pictures and descriptions of the sequence.

1st Roundrobin sequence the pictures.

2nd Match descriptions/sentences with each picture from two piles, face down. One pile has easy descriptions. The blue pile ("The sky's the limit") is the challenge pile with more complex descriptions. If a student chooses a blue sentence and changes his/her mind. That's OK.

Alternative: Do the activity as a pair-task rather than roundrobin. One student sequences the pictures, a more proficient partner sequences sentences. See examples.

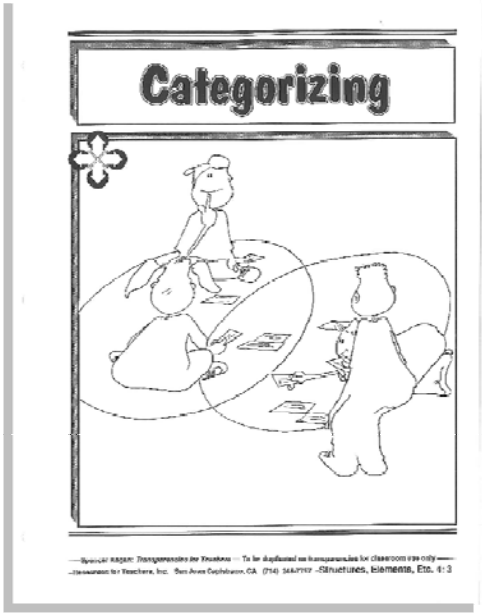
Roundrobin vocabulary into categories. Have all vocabulary face up, so each student can pick words s/he knows. Color-code the vocabulary: prerequisite vocabulary and new more difficult vocabulary.

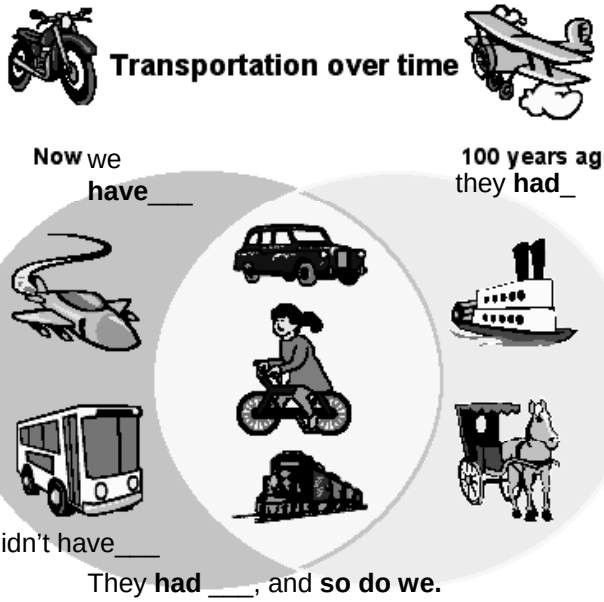
EXAMPLES:

Students roundrobin categorize pictures, math problems, vocabulary words (written in large font.)

They use the language modeled and, if ready, try the challenge given.

Students give thumbs up if they agree, thumbs down if they disagree. They discuss to try to reach consensus.



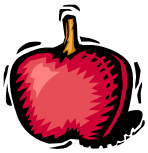


Source: Kidspiration
www.Inspiration.com

NS1

Organizer # 1

BIG IDEA: We eat different plant parts.

fruit of some plants	leaves of some plants	stems of some plants
		
roots of some plants	**seeds of some plants**	**flowers of some plants**
		

LANGUAGE OBJECTIVE: Students practice the structures:
This is lettuce. Lettuce is an example of leaves. OR These are peas. Peas are seeds.

CHALLENGE: Students use the structure, "Beets belong(s) in the classification roots". They give more information about the plant or tell about cooking or eating the foods.

NS2

Organizer # 1

BIG IDEA: We eat different plant parts.

fruit of some plants	leaves of some plants	stems of some plants
Papaya 	Collard Greens 	Sugar Cane 
roots of some plants	**seeds of some plants**	**flowers of some plants**
 **YUCA**	 **Passion Fruit**	 **Flor de calabaza**

LANGUAGE OBJECTIVE: Students practice the structures: This is Spinach. Spinach is an example of leaves. OR these are apples. Apples are fruits.

CHALLENGE: Students use the structure, "Yuca belong(s) in the classification roots". They give more information about the plant or tell about cooking or eating the foods.

BIG IDEA: Preserving our resources helps us have a, clean and healthy environment.

CONTENT OBJECTIVE:

Classify recyclables into the categories in the chart and suggest other ways to reduce waste.

Paper	Plastic
	
Metal	**Compost**
	

Language objectives: Use the sample sentences to describe characteristics of the objects and to explain your suggestions.

This is a, an _____. These are _____

The _____is made of paper, plastic, OR metal.

The _____ can be used in compost.

CHALLENGES:

1. How could you reuse some of the objects in the sort?
   We could make _____ from the _____.

2. How could you reduce the use of some of the objects?
   I could use _____instead of using _____.

3. Create another category for the table, and suggest pictures to go in it.
   _____ can also be recycled.

   Some products like _____ and ____ should be in a special category due to their harmful effects on the environment.

Stand and Share

- Use to ask a question where all have an answer and there are multiple answers.
- Students think and all stand to share an idea.
- Others wanting to share the same idea sit down.

Note: To lower anxiety use Think-pair before asking students to stand.

Students often try to think of another idea to share if they are not ready to sit.



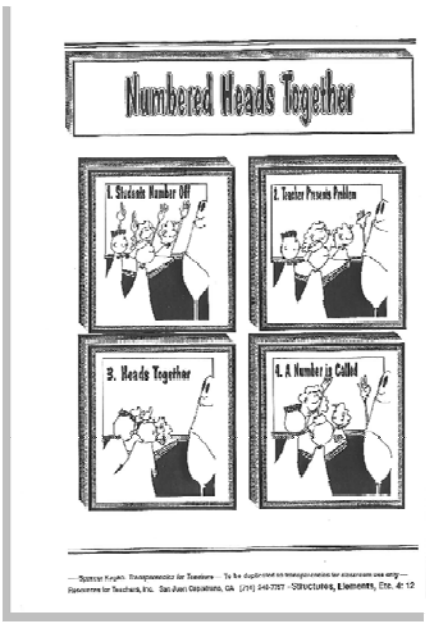

Stand and Share Examples

- What did you learn today (or in class yesterday)?
- Read the information. Share an important idea. (**Challenge:** Don't look at the reading.)
- Share opinions, applications, examples, rules, precautions, most anything that could be shared in Roundrobin. However, don't use Stand and Share for a question where every student would have a different answer.
- Students get a chance to stand up. It's a nice break and can be a meaningful summary at the end of a class period.

1. Use to ask a more difficult question, **or a multipart question.**

2. Students put their heads together to answer. 3. Call a number. 4.Those people stand and contribute to the answer.

Good structure to process a reading passage, answer multiple questions or share big ideas/ understandings.



Suggestions for Numbered-heads-together

- Give students time to think (7-10 sec.) before asking them to talk in their team.
- Don't tell students ahead of time, which number you will call. Have students talk to each other and call on each other. You may tell the person speaking what to ask next in multiple part questions.
- If the question is used to focus a reading. Do in two parts. First give the question and time to read, then time to talk.
- Give a time limit, not too much time to avoid off-task behaviors. Give a challenge for those who finish early. If all are working but not finished, specify more time.
- To lower anxiety, students can "Phone a friend" but must repeat what the friend says, ask the teacher for (50-50) two answers to choose from, or if possible, "poll the audience".

Math examples of Numbered-heads-together

Problem: Draw and solve

- 8 apples are on a tree.
- Diego picked and ate 2.
- How many apples are on the tree?
- Write the equation on the white board and explain each step.

CHALLENGE:
Claudia picked and ate 3 more. Now how many apples are on the tree.

Given the equation $5(-3x - 2) - (x - 3) = -4(4x + 5) + 13$, show all steps and explain orally.

Call #, those students go to the board, each does a step.

Multiply factors.
$-15x - 10 - x + 3 = -16x - 20 + 13$
Group like terms.
$-16x - 7 = -16x - 7$
Add $16x + 7$ to both sides and write the equation as follows
$0 = 0$
The above statement is true for all values of x and therefore all real numbers are solutions to the given equation.

CHALLENGES: Write a similar problem. OR
Where might a problem like this be applied in real life?

Language arts examples of Numbered-heads-together

- Who is the main character in the story? Where was the character? What was the character doing when the story began?

  Challenge: How does the author help the reader know the character?

- What was the problem in the story? How did the character feel? What did the character do to solve the problem? How did the story end?

  Challenge: Would you have done the same thing as the character? Why or why not.

- How is a compound sentence different than a complex sentence? Write an example of each.

  CHALLENGE: Can a sentence be compound and complex? If so, write an example.

Science and Social Studies Examples of Numbered-heads-together

Science:

- Put the pictures of the cycle, process in order. Match the words with each picture.

  Challenge: Describe the cycle.
- Explain how molecules respond to heat and cold. What causes the wind?

  Challenge: Illustrate wind movement from a high to a low.

Social studies examples:

- How did this Native American tribe meet their need for shelter?

  Challenge: Explain how the climate and natural resources affected the shelters they made.
- What were some of the causes of WWII?

  Challenges: Explain how two or more causes were interrelated. OR Select what you think is the most important cause and explain your rationale.

Career tech examples: See types of Challenges

AUTOMOTIVE

How does an automotive combustion engine create power?

Challenge: Predict things that could cause it to operate inefficiently. Use cause-effect prompts for variety.

EARLY CHILDHOOD EDUCATION

Based on the child's behaviors in the video clip, what stage of cognitive development as defined by Piaget is reflected? Support your answer.

Challenge: What behaviors would indicate that the child is in the next stage and what would that stage be?

PUBLIC SAFETY

What are the major differences between CPR on an adult and on an infant?

Challenge: Use contrasting sentence prompts to express the differences with sentence variety.

BROADCAST MEDIA

- What modes of persuasion are used in the sample advertisements?

  Challenge: Rank the advertisements from the most to the least effective and explain why.

CULINARY ARTS

- Why is yeast used in baking? How does it work? What are the most common mistakes made when using yeast?

  Challenge: What are the advantages and disadvantages of self-rising yeast?

ENGINEERING

Describe the design of _____.

Challenge: Explain the/a scientific principal that influences the design.

BUSINESS

- What are important relationships among supply, demand, and cost?

  Challenges: Give real life examples. OR

  Use conditional prompts to express with sentence variety.

KEYBOARDING

- Explain how to save and manage files.

  Challenges: Create an analogy to help others remember.

  OR Predict/discuss common errors people make.

ENGINEERING

- Explain how computer simulation software is used to design and test digital circuitry.

  Challenge: Predict the advantages and disadvantages of simulation software.

Any Content Area

- Explain the process of _____OR the steps to solve the problem.

  CHALLENGE: Compare and contrast this process (or problem) with a similar one. Use comparative prompts.

- Answer questions 1-3 about _____

  CHALLENGE: Answer question 5 and/or 8 (harder).

- Define and give examples of the following terms: ____, _____, _____, and _____.

  CHALLENGE: Explain relationships between/among any of the terms.

- What variables interacted to cause _____?

  Challenge: How are the variables similar to _____ and/or different from _____?

Use Numbered-heads together to:

Write a good example for Numbered-heads-together in your classes.

CHALLENGE:

Write a challenge.

My Example

Caution about Roles

- Although often recommended, I avoid giving the roles of material handler, reader, writer and spokesperson.
- The material handler often tends to be less engaged feeling his/her part is done. (Just call a number to have those people get materials.)
- If the person is not a good reader or writer, others may get impatient with him/her. That is often the person who needs the most support. Others also tend to be less engaged if they are not reading or writing. Use pair reading after the opportunity to read individually with developmentally appropriate readings. All students can record what they are learning or Roundtable record.
- Always call a number for a spokesperson so all students are getting ready to talk. This markedly increases mental engagement.
- I don't introduce roles for the first structures I do, rather after I do Numbered-heads-together several times.

Numbered-heads-together. Which of the following would you rate the highest and lowest for your team?

GROUP PROCESSING

1. **We were all involved.**
2. **We clarified if people didn't understand.**
3. **We all stayed on task.**
4. **We supported each other.**

Roles can help the development of these skills:

ROLES

1. **Gatekeeper**
   (Timekeeper)
2. **Clarifier**
3. **Taskmaster**
   (Material Handler)
4. **Peacekeeper**

ROLES

GATEKEEPER It is your job to encourage participation of all and to politely close the gate on someone if you feel others are not getting a chance to participate.

CLARIFIER It is your job to make sure everyone understands the directions. Check for understanding of content, and encourage others to clarify and ask questions as needed.

TASKMASTER It is your job to keep the team on task during the group activities and the class activities. Monitor noise level in the team. Encourage everyone to give the quiet signal.

PEACEKEEPER It is your job to establish a praising atmosphere in the team. Watch for any put downs. Praise others and watch for praising behaviors. Give a "thumbs up" when you hear or see praising.

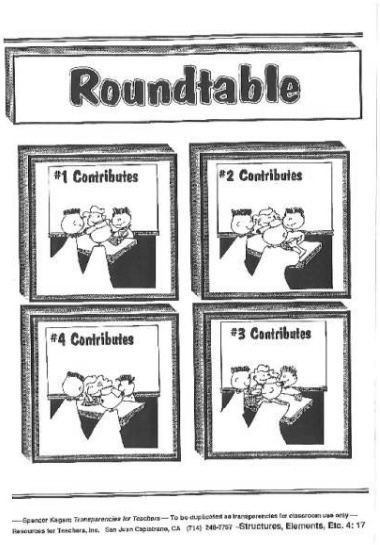
Follow the same procedure as Roundrobin but use when you need a written answer.

Use only when there are many answers and all students can be successful.

The process needs to move quickly to engage all.

Students take turns writing their answers. Call a number to start.

When finished, call a number to stand and share unique ideas with the class.



ROUNDTABLE

EXAMPLES:

- Roundtable add to the pattern.
- Roundtable count by 5s, list examples of prime numbers, write the lowest common denominators, equations, etc.
- Roundtable draw examples of shapes, symbols, etc.
- Roundtable label an illustration, the nouns in the picture, or multiple parts of speech (color-coded)
- Look at any content picture and roundtable important vocabulary words (not just nouns).
- Divide the paper into **columns**: acids and bases, rights and responsibilities, needs and wants. Record in either column.
- **Simultaneous roundtable**, all record at the same time, then roundrobin share orally.

Suggestions for Roundtable

It takes longer to record ideas on a large piece of paper.

Record on small paper and share ideas for class chart.

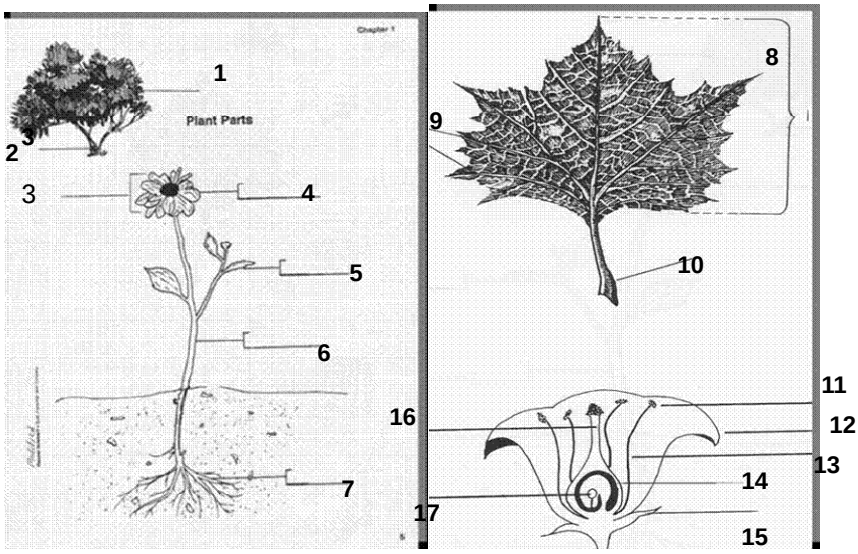
When appropriate, record on a transparency.

Use pictures in teams to prompt ideas and record answers.

Orally share complete idea, but only record single words/phrases. It must move quickly to keep all engaged.

Limit group size to 4.

Differentiation Idea: Roundtable label an illustration, easy version on the front, a more complex version on the back.



Additional differentiation ideas

1. Students help each other spell the words. It's more engaging when done for everyone with a chant.
- Recording student says, "I say roots."
- All students say, "We say, roots."
- Everyone spells as the recording student writes "r-o-o-t-s"
- All repeat "roots".

2. Students say the term in his/her own language and others translate.
3. Use a word bank and students copy the words. "Try the challenge and don't look at the word when copying."
4. When labeling a picture, "Try the challenge and label a more precise term for a word given."

Think-pair-share
Who is the main character?

Roundrobin
Describe the main character.

Roundtable the Setting

Stand & Share Conflict Idea

Role-play internal dialogue.

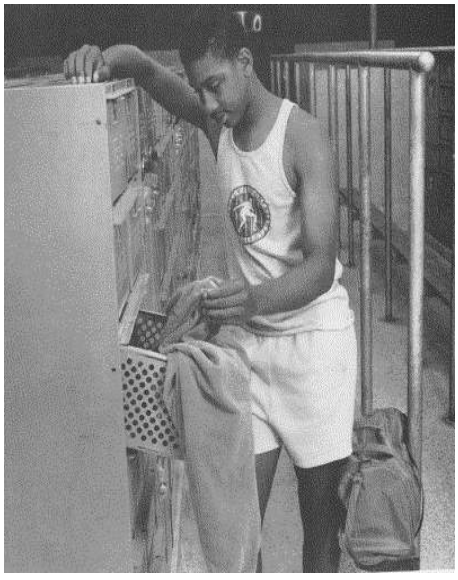
Source: Sticky Situations: Decision Making/Coping Strategies for Teenagers and Young Adults by Julia Jolly, Dormac, Inc

Directions for multi-structured activity

- Think-pair share the character. Decide as a class on one.
- When the teacher calls a number after roundrobin, those students will stand. Instead of just sharing an idea from the team, students will build on each other's answers. Ex. The first team gives the character a name, the others add, age, ethnicity, background. Do the same for the setting.
- Agree on a conflict after the Stand and Share.
- Partner's then role-play the internal dialogue (not what they are really saying) of the two principal characters.
- Within the team discuss possible actions to solve the problem and agree on a resolution.
- Use the following picture to generate a story in each team. Each student in the team will contribute his/her assigned part as they orally generate a story.
- Later this cooperative strategy can be combined with Story Impression.

Each team roundrobin make up a story about the picture.

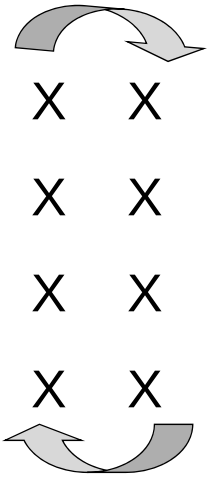
1. Make-up exposition of the story.
2. Tell the conflict and consequences to the character.
3. Try to solve the problem, but another problem arises.
4. Solve the problem and end the story.



Source: Sticky Situations: Decision Making/Coping Strategies for Teenagers and Young Adults by Julia Jolly, Dormac, Inc

Inside Outside Circle

Rotating Lines



Inside Outside Circle

- Use as a class-building activity to have students share personal interests and experiences.
- Students use to practice math facts. For example, each student has a card with the calculation on the front and the answer on the back. Front: 3 X 4 Back 12

  Students share cards with a partner and answer. They make corrections, if needed and **trade cards** before rotating to the next person. Pictures with spelling on the back, states and capitals, animal picture with animal group name on the back would be other examples.
- Use to answer reaction questions related to historical events or stories read.
- Students answer questions where a right answer is not critical or the teacher expects good answers.
  - Why do you think standards of measurement are important?
  - What is one of the problems your team had when using ancient body measurements?
  - Why did you get better measurements with paperclips?
  - What problems did you have when using paperclips to measure?
  - Why did a ruler work better than paperclips to measure the table?

STRUCTURE	Not Ready	Ready	Use Often	Can Teach
Think-pair-share				
Roundrobin				
Stand and share				
Numbered-heads-together				
Roundtable				
Inside-outside circle				