GROUPING:
Think-Pair-Share
Jigsaw
Cooperative grouping refers to students working together for a common goal or purpose. Effective use of the strategy occurs when students work together to accomplish shared goals and when positive structures are in place to support that process (Johnson & Johnson, 1999).

Types of Grouping:

**Heterogeneous** grouping typically refers to grouping students who vary in terms of their intellectual ability, English proficiency, background experiences, prior knowledge, etc. In this type of group, students may learn other skills besides the content being presented such as mentoring, leadership, peer teaching, group roles, collaboration, etc.

**Homogeneous** grouping refers to grouping students who are similar in their intellectual ability, English proficiency, background knowledge, interest areas, etc. in regard to the content that is being presented. This type of group allows students who are at similar academic levels to receive more intensive, direct instruction.
First Impressions

- How can I bolster my students’ confidence in their own independent thinking skills?
- How can I promote cooperative learning and tolerance in my classroom?
- How can I implement grouping strategies effectively in my classroom?
Section 1

Definition and Purpose

As students enter the modern career world, they will need critical thinking skills as well as the ability to work collaboratively. Think-pair-share is a cooperative learning technique that mirrors the way that adults work in teams towards common goals: each individual contributing ideas and then working cooperatively towards a synthesis of those ideas.

What’s This?

Thinking...

- presents students with an opportunity to assess a given topic independently.
- requires between ten seconds and five minutes, but may take longer in some variations.
Pairing...

- is most effective when partners are assigned rather than self-selected.
- gives students a chance to gain different perspectives on different topics, so they should switch partners often.
- encourages students to discuss and evaluate various possible responses to a topic and to determine which best addresses the topic.
- requires enough time to compare answers while limiting time that might be used to get off task.

Sharing...

- engages the entire class in a discussion of the topic at hand as students share correct answers as well as ideas they found to be interesting or troubling.
- may be recorded on the board, overhead, or elsewhere by a student acting as scribe.
- can be extended to increase higher order thinking skills by having students analyze or critique the answers that were shared by the pairs.
- may yield many teachable moments for attentive instructors. As students respond, listen for misunderstandings that can be cleared up right away. If one pair seems to be misinterpreting something, there is a good chance the rest of the class may be struggling with that same concept. It will be much easier to clear up during share time or immediately after it than when the students are working independently or in pairs later.
Take a Look

Follow the link to hear a general overview of the think-pair-share strategy: Intro to think-pair-share.
Question 1 of 7

How much time should a teacher allow for “think” time for think-pair-share?

- A. 5 seconds
- B. 2-20 minutes
- C. 10 sec - 5 min
- D. 45 sec - 1 min

C. 10 sec - 5 min is the correct answer.
How will think-pair-share look in my classroom?

- Respond to a controversial topic and share responses.
- Solve a specific problem and compare solutions.
- Summarize learning objectives for a chapter or week.
- Compare and contrast two topics from recent classes.
- Review and assess a completed activity or worksheet, reconciling answers that do not match.
Content Specific Examples of Think-Pair-Share

**Math:** Provide class with the graph of a function. Have students classify the function and theorize what the function may represent.

**Science:** Propose a potential future scientific achievement, such as sustaining life on mars or attaining immortality. Have students discuss whether or not they believe this is a possibility and why. They may also develop possible consequences of such an achievement.

**History:** Ask students to identify the causes of the American Revolution. To extend the discussion, have students debate the necessity of the war.

**English:** Ask students to return to a specific line, paragraph, or chapter in their reading and discuss the logic behind a character’s behavior. To personally engage students, ask them how they might react in the same situation, keeping the time period and other external factors in mind.
Classroom Example of Think-Pair-Share

Language Arts Lesson Using Jigsaw: *Tales of a Fourth Grade Nothing*, Judy Blume

Begin lesson with a **think-pair-share** to activate prior knowledge and personal connection to material by asking students: What are some behaviors displayed by children that can be ‘irritating’ to the teacher? What makes these behaviors ‘irritating’?

Introduce the text, characters, setting and the problem. Set a purpose for reading and go over unfamiliar vocabulary that will be in the video clip. Use **think-pair-share** to encourage students to think about, visualize, and pronounce words, to use the words in sentences, and perhaps to draw or match words to pictures.

Show the first part of the video enabling the closed caption feature. Check to see what other language translations are available and provide them if needed.

After viewing video, initiate another **think-pair-share** with the question: What sort of behaviors does Fudge display that might be considered irritating by a teacher? This will help students recall details, make connections with the character, and focus, and it will allow an opportunity for language translation and picture retrieval where needed.

Jot down students’ responses to generate ideas for a compare/contrast graphic organizer. Ask each student to create a graphic organizer individually.

Display student work in room.
Think About

View the two examples of teachers using think-pair-share in the classroom setting. Notice the differences in approach to each of the think-pair-share steps.

**Math example:**

*Think-Pair-Share to Practice Simplifying Expression*

**ELL example:**

*ESOL Teaching Strategy*

After watching the two example videos answer the following questions:

**Step 1: Think**

In both examples, the teacher carefully monitors the time provided for the first step. In the first example, students record their thoughts on paper. In the second, the students think silently. Are there reasons you might choose one approach over the other? Can you think of ways that choosing either method might lead to differentiated instruction?

**Step 2: Pair**

These teachers use different methods for grouping students together. Are there other approaches to choosing groups that you could use? While the students are collaborating, the teachers actively monitor the student conversations. How does the pairing process support student learning? Do the students seem to be engaged in the problem solving process? How do the instructors use this step to clear up student misconceptions?
Step 3: Share

Did you notice how the instructors applied a different approach to the third step? Are there other approaches to the share step that could provide insight to student learning? Do the students seem engaged in the material? Did the sharing process allow students to think in higher order terms? Were the students able to extend their understanding of the concepts through the sharing process? Are there other advantages you can think of for allowing students to discuss how they approached the problem at hand?

More Think-Pair-Share Examples Online

- Geoscience Engagement Triggers
- Merlot Mathematics Think-Pair-Share Examples
- Use within the French Class
**Section 3**

**Benefits**

**Why use think-pair-share?**

**To encourage collaboration.** Using think-pair-share allows students to learn from one another in a non-competitive environment, to work together towards a common goal, and to practice tolerance.

**To increase self-esteem and participation.** Students who may be reluctant to speak up under normal conditions gain confidence as their thoughts and ideas are confirmed or clarified by a partner.

**To deepen understanding of concepts.** Providing students with time to think independently about the concepts they are learning gives them room to make deep connections. As they share their ideas in pairs and as a whole class, their understanding is further broadened by the unique ideas of their peers.

**To dispel misunderstandings promptly.** As students share their responses, the instructor can take the opportunity to resolve misinterpretations, errors, and confusion before independent practice begins.
Learn More About Think-Pair-Share

Instructional Strategies Online: Think-Pair-Share

Think-Pair-Share: Process and Benefits (Video)

This video provides a short outline of the process and benefits of think-pair-share.

Information about these variations can be found within the "Links with Examples."


First Impressions

• How can I help students retain information?

• How can I ensure diversity within groups as students work collaboratively?

• How can I create an environment of tolerance and cooperation that increases students’ confidence in themselves and their peers?
Meeting the needs of all students can be challenging in America’s uniquely diverse classrooms. In addition to ability variances, differences in ethnicity, gender, and race can create tension and sometimes conflict. The jigsaw strategy is a cooperative learning technique that reduces conflict created by disparities among school children, improves the quality of learning and student motivation, and increases enjoyment of the classroom experience (Aronson, 2011).

**What’s This?**

*Jigsaw grouping...*

- is a means of unifying students of diverse ethnicity, gender, race, and ability into cooperative groups.
- supports both independent learning strategies and collaboration.
- builds self-confidence and respect for peers as students adopt the role of expert.
- facilitates the development of social skills such as mentoring and peer-teaching.

**Objectives:**

Students will be able to...

1. Explain the jigsaw grouping strategy.
2. Identify key research supporting the use of the jigsaw strategy.
3. List benefits of using the jigsaw grouping strategy in classroom instruction.
4. Provide examples how the jigsaw grouping strategy can be using in content instruction.
Take a Look

What are the steps in jigsaw grouping?

1. Divide students into 5-6 person heterogeneous ‘home groups.’

2. Divide material to be learned into 5-6 segments, one segment per student.

3. Assign each student one segment of material to master by counting off, selecting colored notecards or popsicle sticks or some other means.

4. Form temporary ‘expert groups’ composed of students assigned to the same segments of material.

5. Provide expert groups ample time to discuss their material and to prepare and rehearse presentations of the material.

6. Return students to their original home groups where they teach their group members their segment of material.

7. Give groups time for presentations as well as time for members to ask and answer questions that arise.

8. Move among the groups to observe the process and to offer any necessary interventions.

9. Assess students’ knowledge of all material.

More detailed step-by-step instructions can be found online at Jigsaw Classroom.

Take a Look Video

Jigsaw: A Teaching Strategy (YouTube)
The Expert Jigsaw Strategy (YouTube)
Jigsaw

Drag the labels into correct order to facilitate a classroom jigsaw activity.

- Expert groups are ...
- Material divided into 5-...

Check Answer
How will the jigsaw strategy look in my classroom?

**Social Studies**: Examining human rights violations (pdf).

**Language Arts**: Understanding texts.

**Math**: Collaborating to solve compound inequalities.
Classroom Example of Jigsaw

Science Lesson Using Jigsaw: Igneous Rock Classification

As students enter the classroom, they pick up a rock from one of three boxes that contain samples of granite, gabbro, and basalt. Students are placed in home groups of three so that each group has one example of each of the different types of rocks.

The instructor asks students to study their rock samples individually and write down all the observations they can make about them. After giving students several minutes to study their rocks, the instructor asks the students to move to a larger expert group made up of all students who have the same rock as theirs.

In the expert group, students share what they noted about their own rocks, compiling everyone’s observations into a list describing a particular type of rock.

Once the lists have been generated, students return to their home group. Here, they share the information gained in their expert groups and note similarities and differences among the three types of rocks in their home group.

The instructor then asks groups what they have noted about their rocks, compiling responses on the board. Students make all of the observations that one might expect them to make about color, grain size, and texture, providing an engaging base for the instructor to introduce igneous rock classification.

Although the jigsaw assignment takes time in class, the instructor does not need to spend as much time lecturing about igneous rock classification. If planned well, the overall time committed to using this jigsaw during class is comparable to that of lecturing about the topic, and the students will retain a mental image of these three rock types.
Think About

In thinking about a history class...

One example of the jigsaw strategy is to teach a unit on U.S. presidents and focus on President John F. Kennedy. Present the media of your choice, for example, The Kennedy's from pbs. Following the presentation of President John F. Kennedy's biography, incorporate the use of the jigsaw strategy to facilitate student understanding and retention of material.

How do you do this? Use the following questions to guide you:

1. How many sessions do you want to set up to cover the material?

2. What are your plans for assigning students to groups?

3. How to assign the group leaders? What group rules would be helpful to discuss? How can grouping assignments help you differentiate instruction?

4. How do you budget time for each stage of the jigsaw strategy?

5. Students need to spend some time discussing their findings and practicing presentations they will soon give to their original groups. What rubric statements would help students understand expectations for the presentation?

6. After the students learned their sessions, they will return to their original groups as "experts." How can the instructor redirect the students in the original groups to present their findings?
Section 3

Benefits

Why use jigsaw?

To encourage cooperative learning. Because students are dependent upon one another for instruction, they must engage with one another in a spirit of cooperation. The noncompetitive environment further supports collaboration.

To increase self-esteem and participation. Working together in supportive expert groups helps students gain mastery over material, increasing their confidence and fostering an atmosphere of sharing.

To foster tolerance. Students working together with a variety of classmates from different backgrounds and with unique abilities learn to tolerate and even respect one another’s differences.

To increase retention of information. Students have several opportunities to review and question material as they move through the jigsaw process. Further, peer teaching helps students refine and retain concepts that they have learned.

Learn More About Jigsaw


Resources


Grouping refers to having students work together to achieve a common goal. There are several types of grouping strategies, including ability grouping, mixed ability grouping, random grouping, and student selected grouping (Farley, 2013). For purposes of this chapter, we will discuss mixed ability grouping and two strategies that contribute to learning in mixed/heterogeneous ability groups: think-pair-share and jigsaw.

21st century careers demand both independent inquiry and collaboration. This makes using techniques such as think-pair-share and jigsaw imperative in developing the skills that students must master to become successful in their chosen fields as adults. Below is one such exercise.

**Sample Jigsaw Exercise**

Betty is a first-year teacher, and she wants to have her students do a jigsaw exercise to learn about computer data storage. Let's assume Betty has her class set up in the traditional row format with the teacher's desk at the front of the room. The seating chart is as follows, along with genders and races.
Betty assigns each student a number, and students move into a group with classmates who have the same number. She also assigns students one of three topics; this will determine the expert group into which students will move.

| Vanessa (African American female) | Harry (Asian male) | Mark (white male) |
| Bob (white male) | Barbara (white female) | Alan (African American male) |
| Youngbear (Native American male) | Patrick (African American male) | Jill (African American female) |

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Once assignments have been made, students move from their home groups to their expert groups. The expert groups will research the following IT-related research topics:

Topic A expert group researches the history of computer data storage.

Topic B expert group researches current computer data storage.

Topic C expert group researches the predicted future of computer data storage.

Students are given fifteen minutes to research their topics and then summarize what they have learned independently. Betty has chosen to limit students’ access to information either by using restrictive technology or by eliminating technology altogether and giving students print materials. This forces students to DEPEND on one another when they return to their home groups rather than circumventing the purpose of the group exercise by working independently.

After the 15 minutes are up, the expert groups meet to discuss their research and to create a presentation that synthesizes their individual findings. It is pictorially shown below.

| Topic A – Vanessa, Barbara, and Jill meet and create a presentation concerning the history of computer data storage. | Topic B – Bob, Patrick, and Alan create a presentation concerning present-day computer data storage. | Topic C – Youngbear, Harry, and Mark create a presentation concerning the future of computer data storage. |
Please note that when the groups are mixed by race, the groups will not always come out with a representative sample in each group. That’s ok because over time, as the classroom works on many different jigsaw exercises and students are reassigned to work with other groups, the barriers of race and gender should dissipate.

Finally, the groups reassemble into their home groups and are given 15 minutes to tell each other their information. Remember—they ONLY had access to the materials the teacher gave them. This forces them to rely on OTHER STUDENTS to get the data, and encourages team building. So the groups now look like this:

| Home group 1 – Vanessa, Harry, and Bob get together and create a report containing information on the historical, contemporary, and possible future use of data storage. | Home group 2 – Mark, Barbara and Alan get together and create a PowerPoint containing information on the historical, contemporary, and possible future use of data storage. | Home group 3 – Youngbear, Patrick and Jill get together and create a storybook containing information on the historical, contemporary, and possible future use of data storage. |
Cooperative Learning

According to the Association for Career and Technical Education (ACTE), “Career and Technical Student Organizations (CTSO) play an important part in preparing young people to become productive citizens and to assume roles of leadership in their communities. These organizations provide a unique program of career and leadership development, motivation, and recognition for secondary and post-secondary students.” Any student enrolled in a career and technical course is eligible for membership in the career and technical student organization associated with that program.

CTSOs have been proven to be extremely effective instructional tools, providing excellent opportunities for students to work cooperatively with their peers and allowing for teachers to use CTSO resources to provide unique learning opportunities for their students, such as competitive events.

While terms like “curricular” or “co-curricular” have been used to describe CTSO activities, there is no question that CTSOs are anything but EXTRA-curricular. CTSOs are NOT “clubs” or “competitions.” They are much, much more.

CTSO activities are integral to career and technical education when they:

- are used to develop, improve, and expand occupational competencies related to a particular career and technical subject.
- increase the relevance of the instruction.
- enrich and enhance classroom/laboratory learning through performance activities.
- develop students’ leadership skills through targeted classroom activities.
- provide training and realistic learning experiences to prepare students for employment in careers related to the curriculum area.
• offer opportunities for recognition by business and industry professionals for their work, skills, and talents.

• develop a sense of community through participation in CTSO activities.

Each CTSO offers opportunities for students to:

• gain leadership training by attending local, state and district conferences.

• assume active roles in their community.

• develop networking, interpersonal, and communication skills.

• utilize hands-on approach to learning through leadership training or competitive events.

• develop self-confidence through the experience of success as a leader, through learning a new skill, or through competition.

**Future Business Leaders of America - Phi Beta Lambda**
FBLA-PBL is a dynamic organization of young people preparing for success as leaders in our businesses, government, and communities. This site was created to help current and prospective FBLA-PBL members find information about the association, its programs and services, and its members.

**DECA**
DECA, a national association of marketing education students, provides teachers and members with educational and leadership development activities to merge with the education classroom instructional program.

**Technology Student Association**
The Technology Student Association (TSA) is the only student organization devoted exclusively to the needs of technology education students who are presently enrolled in, or have completed, technology education courses.
Social Media

Social media is a great resource to extend the classroom and enhance CTSO’s. Many positive student learning outcomes can be possible when using the various forms of social media. It is important to note that every school, district, and state have implemented policies and guidelines for using social media. Teachers should be mindful of the policies their school system has in place.

Benefits to integrating social media in the classroom

- ubiquity of social networking.
- student engagement.
- incorporating real world experience into subject matter.

Below are examples of Web 2.0 tools:

Animoto℠ - Turn photos, video clips and music into stunning video slideshows which can bring your lessons to life.

Bookemon℠ - Bookemon is an online book-making site lets you create and make your own cookbook, children’s book, kids book, poetry, family history, biography, scrapbooks, and more.

Cool Tools for Schools - Just that an extensive list of Web 2.0 Tools categories by purpose.

Educreations™ - Educreations is a community where anyone can teach what they know and learn what they don’t. Our software turns any iPad or web browser into a recordable, whiteboard.

Edmodo℠ - Provides a safe and easy way for your class to connect and collaborate, share content, and access homework, grades and school notices.
Flubaroo© - Flubaroo is a free tool that helps you quickly grade multiple-choice or fill-in-blank assignments, for free!

Glogster EDU™ - Poster yourself - Make your interactive poster easily and share it with friends. Mix Images, Text, Music and Video. It is fantastic!

GoAnimate, Inc.© - Make a video online for free with GoAnimate!

Infographics℠ - Visual representations of data, information, or knowledge.

Learnist℠ - Share what you know borrow what others know. Learnist is like a collaborative, multimedia and interactive ebook from the future.

Noodle Tools© - Student research platform with MLA, APA and Chicago/Turabian bibliographies, notecards, outlining.

Padlet® - Paper for the Web: Padlet gives you a blank wall. You put anything you want on it, anywhere. Simple, yet powerful.

Pixton℠ - Create your own cartoons with fully posable characters & animals! Upload pictures, create freestyle panel layouts, add sound & voice-over, and much more!

Poll Everywhere® - a great, free tool for conducting formative assessment in the classroom using the students' own devices or a school computer!

Power My Learning© - This site offers thousands of free educational games & learning activities for kids in all major K-12 subjects & aligned to the Common Core Standards including art and music.

Prezi™ - Prezi is a cloud-based presentation software that opens up a new world between whiteboards and slides. The zoomable canvas makes it fun to explore ideas.

Storybird℠ - Storybirds are short, art-inspired stories you make to share, read, and print. Read them like books, play them like games, and send them like greeting cards.

StoryJumper℠ - Magical tools make it EASY to bring your stories to life! Share your realistic book with friends or the world and/or publish your own beautiful hardcover book.

Symbaloo℠ - Access your bookmarks anywhere with Symbaloo, a free social service now available.

Tagxedo© - Tagxedo turns words -- famous speeches, news articles, slogans and themes, even your love letters -- into a visually stunning word cloud, words individually sized appropriately to highlight the frequencies of occurrence within the body of text.

Thing Link© - Make Your Images Interactive with Thing Link.
Use of wikis or file sharing applications like Dropbox or Google Documents allow for groups to collaborate on a CTSO or class project.

- Real-time collaboration through Skype or Google Hangout.
- Network and dissemination of reminders and updates through Facebook, Twitter, and Remind (Formally known as Remind101).
- Post assignments and collect work through Edmodo.

Students’ use of social media in CTE classrooms can be linked to improved teacher-student relationships, increased active learning outside the classroom, and the acquisition of collaboration skills. (Smith, 2010).

CTSO’s greatly benefit from the use of social media both at the local chapter level and at the state and national level. Local chapter advisers and officers can use social media to promote fundraisers and chapter events, remind members of upcoming deadlines and collaborate on competitive group projects. State and national CTSO organizations use social media to update local chapters on new competitive events, promote leadership conferences, and facilitate the sharing of ideas amongst local chapters.
Resources


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