

## TANGRAM

Number of players: **7-28**, class divided into teams of 7  
Players Age: **7+**  
Duration: **45 minutes**

### Materials needed:

- A tangram for each team (check out how to make a puzzle diagram from cardboard/cardboard on your own or with the class),
- Projector/multimedia board or printouts for each team.

### Space:

A place for each group to work, for example, two benches connected to each other, which will give the opportunity for all participants to see the screen while putting together the pattern. In younger grades, it is recommended to approach the board (to point to the picture to other team members the selected piece of the puzzle).

### Before class:

1. Check how large your class/group is.
2. Prepare enough sets of the tangram puzzle so that when the class is divided into teams of 7 (possibly 6) people, each team will have one set (with fewer people in the team, one or two puzzle pieces will be shared by the whole group).

Review the content of the presentation to be displayed in class (downloadable here:

3. <http/...>).
4. Prepare the classroom space so that each team has a place to work.

### Course of action:

1. Turn on the presentation with instructions with the title "tangram".
2. Divide the group into teams of 7.

3. Designate a space for each team to operate.
4. Go through the first slides with the group: "Where to Start."
5. Distribute the tangram sets to the groups so they can look at them and familiarize themselves with them.
6. Go to the slide "Tangram principle." Introduce the class to the three starting principles of stacking.
  - There are 7 puzzle pieces. For each shape to be stacked, all of them will be used. No piece can be left unused.
  - The elements always meet with their edges, never overlap - they are laid flat on the bench, all side by side, connected by one or more edges to another element or elements.
  - All elements can be rotated freely - they have no "front" or "back".
7. Go to the "Warm-up" slide. The teams' task is to arrange the square. If the group has not seen a tangram before, then display a picture with the pieces shown. If the group members have made tangrams on their own, according to DIY instructions, then offer them to arrange the square without the picture prompt to try to recall the elements.
8. When all the teams have arranged the first figure, you can ask the group about their first impressions, such as whether arranging the first figure was easy, and then move on to the next slides: "Ready for the next shape?". Depending on the answer, move on to the next slide or discuss doubts with the class.
9. After arranging the turtle from the slide, you move to the next level of difficulty - this means introducing new rules of the game! Slide #12 shows the key rules for stacking a tangram in teams:
  - Only your piece of the puzzle can be touched while stacking.
  - Elements cannot be taken away from other players.
  - If there are groups of less than 7 people, everyone can touch those items that have been established as common.
  - The goal of the game is to arrange the pattern with the participation of all members of the team, without snatching pieces from each other.
10. After determining the common elements in teams of less than 7 people, the teams first arrange a square with the rules introduced. Then they arrange a turtle - this is an opportunity to practice the rules of the game on a shape that the group already knows. For you, this is a good opportunity to pay attention to the work of the teams:
  - Has the noise level in the classroom increased?
  - Do students use words, or do they communicate mainly through action?

When all the teams report that they have finished arranging, you can discuss the conclusions observed during the work regarding communication in groups.

Summarize this stage with the class. Here are sample questions to ask:

- How did they get along? Did anything hinder their work?
  - Is it difficult to follow the rules?
  - What is worth paying attention to so that everyone works well?
11. After arranging the turtle, it's time for the next level. Follow the rules as you lay out a new pattern that no one knows yet! You can ask if the group wants to see an extra line. The next slides contain hints for figure #3 (the cat) - the first one extra line, the second two lines, and the third all the pieces.
  12. After all groups have arranged figure #3, you can move on to shapes #4 (buffalo/bull/dog) and #5 (heart). Proceed as you did with figure #3. There are slides with hints for each figure.
  13. Then the students have a choice between four shapes to arrange - each team can choose any figure among the four. The class can also determine that, for example, all arrange parallel figures from 1 to 4. Leave the decision to individual teams.
  14. If any group finishes arranging early or does not want to arrange the given patterns, suggest that its members arrange their own compositions.

### Completion of the game:

After arranging the shapes, it is worth discussing with the class the impressions and the course of the game. Sample questions to ask after the game:

- What did the students observe during the arrangement? What was difficult?
- What helped in arranging the figure together?
- How did they feel when they finished arranging a particular shape?
- Do they feel like playing it again someday?

### Tips:

While doing the exercise, observe whether all members in the teams are arranging, or only one or two people. Also note what kind of communication there is in each team, whether it is quiet or loud.

If you notice nervousness or frustration in any team caused by their inability to arrange a figure, give them a hint by using the extra lines shown on the presentation or by going to the table and individually pointing out where a particular piece should be placed in the puzzle. This is important so that the game remains fun for all players and does not pose too much of a challenge, which can generate conflict and increase communication difficulties in the group.