Indian Institute of Technology Bombay
IDP in Educational Technology
Instructor Resources

Resource – *Think-Pair-Share Activity constructor*	Version 1.0, Nov 2018
Download from: www.et.iitb.ac.in/TeachingStrategies.html	Released under: Creative Commons-Attribution 4.0 license

Part 1 – Plan your TPS activity

1. The topic chosen for Think-Pair-Share session is "Introduction to geoscience for civil engineers" additional info on topic can be obtained by viewing the following content https://www.youtube.com/watch?time_continue=259&v=EHQ6G6onSv0

2. **Think phase**:

Q.1) **Identify the various types of rocks as per geoscience/formation classification?**

Response: -
Sedimentary rock
Metamorphic rock
Igneous rock

3. **Pair phase**:

Q.2) **Which of the rock types discussed in the think phase is formed by morphoses effect**

a. **Sedimentary rock**
b. **Igneous rock**
c. **Metamorphic rock**

Response: -
Sedimentary rock (formed by sediment coagulation)
Igneous rock (formed by cooling of molten magma / lava)
Metamorphic rock (metamorphosis on existing rock)

4. **Share phase**:

Response: - The students were asked to share their findings at the end of the session and collective ideas from all participants were taken. It was observed that most of the participants were able to understand and respond to the content satisfactorily. A positive turnup of 90 % was observed.

5. Continue further discussion into the topic, as per your plan. If you find that many of the points that you wanted to convey are already covered, then your TPS activity was a success!

Appendix: Examples of Think-Pair-Share activities from CS 101 for specific instructional goals

Instructional goals	Think Pair Share	Example as shown in the slide to students,
Conceptual understanding	*Think* Students write down answer the given question *Pair* Students (i) Identify parts of the answer that they have missed out. (ii) Discuss which answer is better; do pros-cons analysis if there are multiple solutions. *Share* Instructor discusses (i) What are all the essential parts in the answer? (ii) Pros-cons of various solutions given by students	"Consider an unsorted array of N elements. Think: Write the pseudo code for sorting the array Pair: Discuss your answer with yoru neighbor, do pros and cons analysis of your algorithms Share: Follow instructor led discussion of your solutions and others." *This led to a discussion of various sorting algorithms.

Code tracing: Predict the output; Debug/modify the given code	*Think* Students determine and write down the answer.
	Pair Students (i) check each others' solution (ii) discuss change in code to get others' solutions
	Share Instructor (i) executes the program and shows the output (ii) discusses a few modifications based on student answers
		"Predict the output of the following program:
		int a = 1, b = 2, c = 3; int* p, int* q;
		p = &a; q = &b; c = *p; p = q; *p = 13;
		cout << a << b << c << endl; cout << *p << *q << endl;"
		Think: Draw the memory arrangement and predict.
		Pair: Check your neighbor's solution. If you don't agree, discuss and come up with a solution that you both agree upon.
		Share: See demo of above code and modified versions."
		*The example for the outcome "Debug/modify" is similar

Develop programming logic for a problem: Write program.	*Think* Students write down the pseudo-code. *Pair* Students (i) identify missing pieces in each other solutions (ii) write the program. *Share* Instructor (i) shows one possible solution. (ii) Discusses a few representative student solutions.	"Recall your program to reverse a 4 digit number. Extend your solution to arbitrary integers. Think: Write the pseudo-code individually. Pair: Write the C++ code with a partner. Share: Compare your solution with demo10-reverseNum-mod1.cpp"
Design a solution: Write pseudo-code	*Think* Students write down the different parts (structures and functions) of the solution *Pair* Students discuss the pseudo-code for the functions that are required *Share* Instructor discusses a few representative solutions.	"Design a taxi scheduling service for an airport as follows: (i) When a driver arrives, his ID is entered in an array (ii) When a customer arrives the earliest waiting driver is assigned Think: What structures and variables are required? Pair: Discuss the pseudo-code for the functions that are required. Share: Follow instructor led discussion of your solutions and others."

End of Resource: *Think-Pair-Share Activity constructor*