



Experiential Learning in School Mathematics: Transforming Theory into Practice

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Experiential Learning

Concrete Experience

**Accommodating:
Feel & Do**

**Diverging:
Feel & Watch**

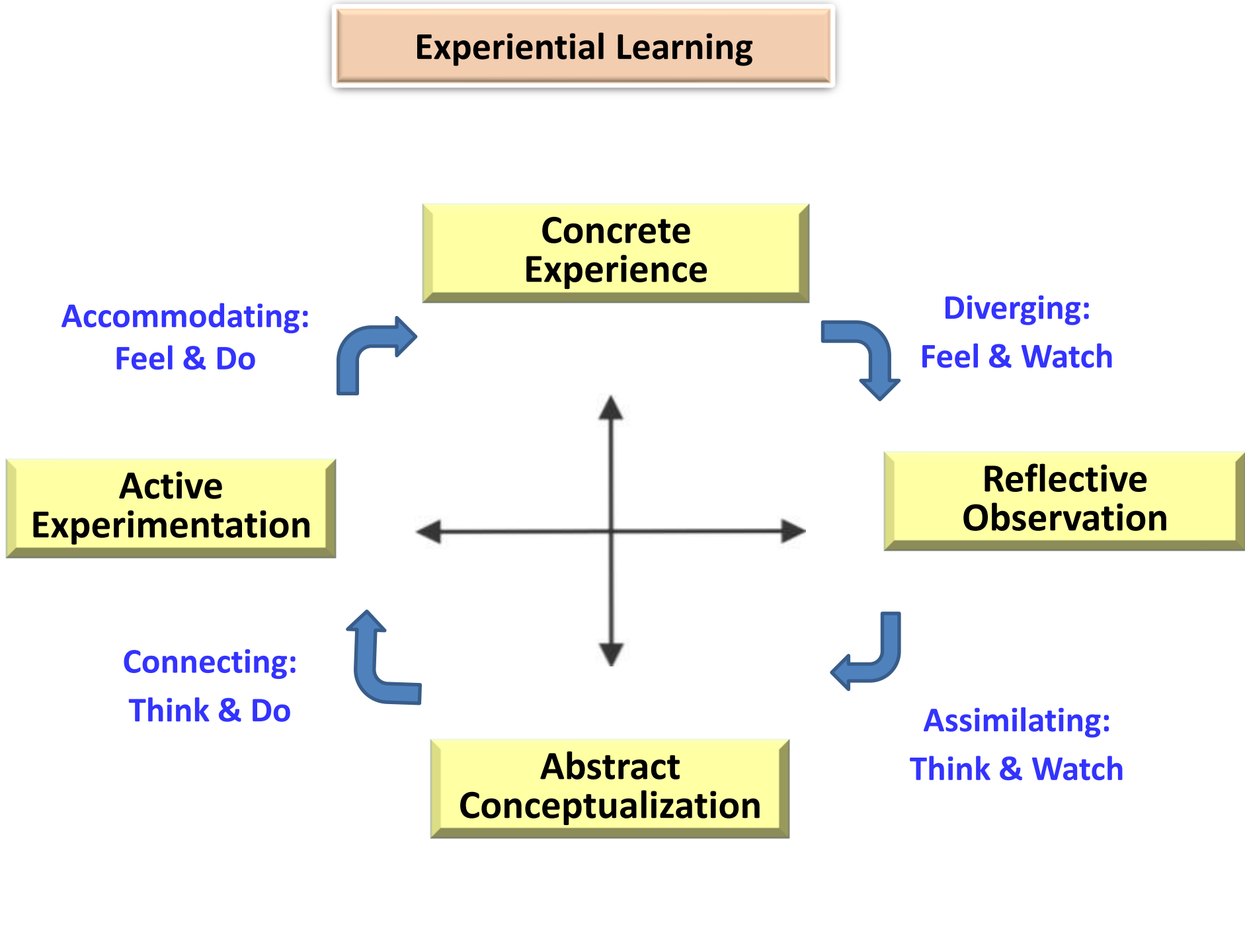
Active Experimentation

Reflective Observation

**Connecting:
Think & Do**

**Assimilating:
Think & Watch**

Abstract Conceptualization



Topic: Area & Circumference of Circle

Setting the Stage

Testing the Previous Knowledge (*What do learners already know?*)

Sparking curiosity (*How to create interest & stimulate learners' curiosity*)

Providing theoretical Information before experience



Concrete Experiences

(Think, Pair & Share)



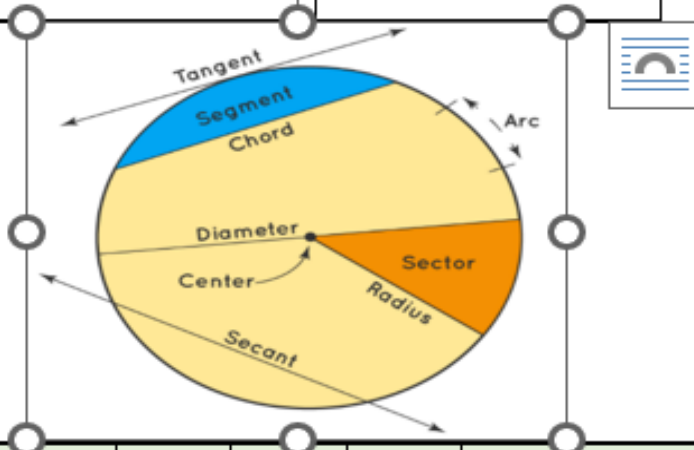
All Groups

Activities

Activity-1



Activity-2

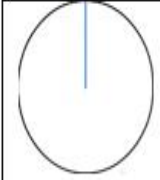
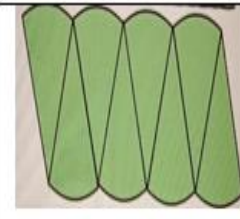
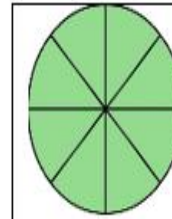


Activity-3

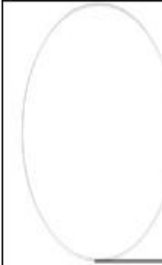
Circle	R (cm)	D (cm)	C (cm)	Ratio (C/D)
1	3.5	7.0	22.0	22/7=3.14
2	7.0	14.0	44.0	44/14=3.14
3	5.0	10.0	32.0	31.4/10=3.14

Activity-4

Find out the area of circle = πr^2



Height = Radius



Base = $\frac{1}{2}$ Circumference

Reflective Observations

(Drawing inferences based on experiential learning according to their potential – use of past experience and conceptual understanding)

Abstract Conceptualization

(Assimilate key aspects of learning from the inferences drawn by learners)

One center point from which the circumference is equidistant from the center point of a circle.

Relationship between radius and diameter in the circle.

The distance around the circle is called its circumference.

Circumference of a circle is always more than three times (approx.) its diameter

Relationship among chord, segments, center, and circumference.

A chord of a circle is a line segment joining any two points on the circle.

The process for exploring the area and circumference of a circle.

Abstract Experimentation

(To extend the lesson for linking/connecting with real-life situations)



Assessment

In the following figure, A boy runs around a rectangular park, with a length of 50 m and breadth of 38m whereas a girl runs around a square park on a side of 44 m. Who covers lesser distance?



Reference

- Central Board of Secondary Education (2019). *Experiential learning-A story by Padhkar Kumar and Karkar Kumari*. Retrieved from http://cbseacademic.nic.in/web_material/Manuals/ExperientialLearning.pdf
- Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education*, 4(2), 193-212.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.
- National Council of Research and Training. (2005). *National Curriculum Framework-2005*. NCERT: New Delhi.
- National Council of Research and Training. (2017). *Learning outcomes at elementary stage*. NCERT: New Delhi.
- Ministry of Education. (2020). *National Education Policy 2020*. Retrieved from <http://www.education.gov.in/sites/upload-files/mhrd/files/NEP-Final-English-0.pdf>