**TAXONOMY FOR INDENTIFYING, CLASSIFYING AND INTERRELATING TEACHING STRATEGIES[[1]](#footnote-1) – Geometry**

| CATEGORIES | Associative  **Group students based on their skills, needs and interests to help facilitate mental, emotional, and/or social growth.** | Deliberative  **Encourage a thoughtful exchange of ideas to promote cognitive, social, and verbal communications skills.** | Expositive  **Provide information, oral or written, in an orderly, authoritative and intelligible manner, to a receptive audience.** | Individualistic  **Provide instruction designed to meet the skill needs and interests of the student, based on individual assistance.** | Interrogative  **Use questioning skills to encourage participation, clarify and evaluate understanding and promote higher thinking.** | Investigative  **Solve problems, based on inductive reasoning, by collecting and analysing data, and drawing conclusions.** | Performative  **Encourage creative, aesthetic, and or psychomotor expression based on the dramatic/fine arts, and physical skills.** | Technological  **Allow students to access and record information by means of mechanical devices, from film projectors to computers.** |
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| STRATEGIES | E.g. dyads, partners, cross/multi-age, ability and interest groups, heterogeneous, homogeneous, cooperative learning teams | E.g. debate, round table, conference, panel, symposium, magic circle, fishbowl, brainstorm, buzz session, class discussion | E.g. lecture, recitation, review, oral or written report, textual readings, graphical materials, demonstration, modelling, testing | E.g. programmed self-paced, packet, contract, learning styles, mastery learning, independent study, tutorial, interest centres | E.g. convergent, divergent, prompt, probe, redirect, repetition, interview, open-ended, higher level Socratic questioning | E.g. inquiry, exploration, problem solving, critical thinking, experimentation, laboratory, case study/method, discovery | E.g. dramatic play, role play, story-telling, choral reading, calisthenics, dance, mock trial, rehearsal, simulation, gaming | E.g. audio/video-recording, data/film projection, televising, videoconferencing, word processing, webquest, emailing |
| STRATEGY  OBJECTIVES | 1. Encourage students to develop particular skills with the support of group members; 2. Facilitate a spirit of cooperation, decision making, and task resolution through group interaction; 3. Help each group member achieve self-confidence and self-esteem through a non-threatening group atmosphere; and 4. Encourage group members to respect each other’s contributions, weigh the merits of opposing arguments, and to achieve group consensus. | 1. Encourage student to examine attitudes and opinions objectively and to be receptive to new ideas; 2. Help students achieve higher levels of thinking, such as analysis, synthesis and evaluation; 3. Promote a consensus decision making after carefully examining various positions; and 4. Develop communication skills by encouraging students to express their ideas carefully and logically | 1. Develop the listener’s ability to identify the essential information by means of note- taking, highlighting text etc.; 2. Provide a body of precise information that the instructor can hold the listener responsible for learning; 3. Be efficient because the presenter can determine the amount of content and the time; and 4. Allow the providing source a structure that will minimise digressions and extraneous information | 1. Provide for personal one-on-one attention when needed; 2. Reduce the amount of frustration students might experience from group competition; 3. Allow individuals to assume responsibility and directing much of their own learning; and 4. Provide a sense of security by allowing the individual to work at a comfortable pace. | 1. Encourage a sequential development of thinking skills from recalling information to constructing generalisations and making value judgements; 2. Prompt students to identify critical information and to emphasise relevant information; 3. Encourage active participation by giving each student an opportunity to ask and respond to questions; and 4. Improve the student’s achievement and sense of accomplishment by asking appropriate questions and allowing sufficient time to respond. | 1. Increase motivation by allowing students to direct much of their own investigation with the teacher’s guidance; 2. Promote greater understanding and increased retention by often providing for active and hands-on learning; 3. Encourage the development of social skills and interdependence by means of small group investigations; and 4. Require students to arrive at valid conclusions based on supporting data. | 1. Encourage self-discipline by requiring practice and rehearsal; 2. Make learning more personal and relevant to students by fulfilling their cognitive, emotional physical and aesthetic needs; 3. Encourage the development and expression of personal values and feelings; and 4. Promote social responsibilities and values by means of group interaction, mutual assistance and shared decision making*.* | 1. To increase attention and motivation as students often regard technology as a major source of entertainment and learning; 2. Help organise information, provide multi-sensory communication, and immediate feedback, especially in the case of interactive technology; 3. Provide students with technical, interpersonal, and communication skills needed to be successful in the workplace; and 4. Encourage active participation and student-centred learning by means of interactive strategies. |
| Use of coordinates and absolute value to find distance between points in the plane. Equation of the line and interpretation of slope as a constant rate of change. Describe geometric shape using equations. Find/visualise solution to set of equations in a form of geometric curve. |  |  |  |  |  |  |  |  |
| Solve inequalities graphically. Calculate the length of an arc of a circle and area of a corresponding section. Find the area of a trapezium. Use formulas for volume of cylinder, cone and sphere to solve both mathematical and real life problems. Apply Pythagoras theorem in both 2D and 3D to determine unknown length. |  |  |  |  |  |  |  |  |
| Relationship between intersection of the lines and solution to the simultaneous linear equations. Apply Pythagoras to find distance between two points on the plane. Describe the two-dimensional figures that result from slicing three-dimensional figures. |  |  |  |  |  |  |  |  |
| Name and classify different polygons. Use formulas for the area and circumference of a circle. Solve problem involving scale drawings of geometric figures requiring computing their actual lengths and areas from a scale drawing. |  |  |  |  |  |  |  |  |
| Identify parts of similar and congruent shapes and use proportional relationship to find missing measures. Identify and use different properties of quadrilaterals. Classify 2D shapes in hierarchical order based on their geometrical properties. Reflect, translate and rotate figures by using appropriate tools and methods. |  |  |  |  |  |  |  |  |
| Find the area of right triangles, regular triangles, special quadrilaterals, and regular polygons (pentagon, hexagon, octagon) by composing into rectangles or decomposing into triangles or other familiar shapes. Identify similar and congruent shapes. Draw rectangles/triangles in the coordinate plane given coordinates for the vertices. |  |  |  |  |  |  |  |  |
| Apply rotational and line symmetry. Recognise and identify right triangle as a special category amongst other triangles. Represent three-dimensional figures using nets made up of rectangles and use the nets to find the surface area of these figures. |  |  |  |  |  |  |  |  |
| Define and uses coordinate system as two perpendicular lines with the intersection in the origin. Use coordinates (ordered pairs of numbers) to locate point in the plane. Recognize a line of symmetry for two-dimensional figures. Draw lines of symmetry in figures. |  |  |  |  |  |  |  |  |
| Compare shapes according to their geometric properties (shape, length, angle).Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. Classify and measure angles (right, acute, obtuse ....). |  |  |  |  |  |  |  |  |
| Classify different shapes and identify their parts and spatial relationship between the parts (i.e. sides of the rectangle are parallel and perpendicular).Identify letter with parallel lines. |  |  |  |  |  |  |  |  |
| Classify shapes by number of vertices or edges. Name shapes such as: triangles, rectangles, pentagons and hexagons. Describe position of an object in the space using grid. |  |  |  |  |  |  |  |  |
| Name basic shapes. Distinguish between defining properties (e.g., triangles are closed and three-sided) versus non-defining properties (e.g. colour, size, orientation ). Draw shapes such as triangles and rectangles. |  |  |  |  |  |  |  |  |

1. Based on the work of Charles R. Beck, (1998), ‘A taxonomy for identifying, classifying, and interrelating teaching strategies’, Vol. 47, No. 1 , *The Journal of General Education*, pp. 37-62, 37 [↑](#footnote-ref-1)