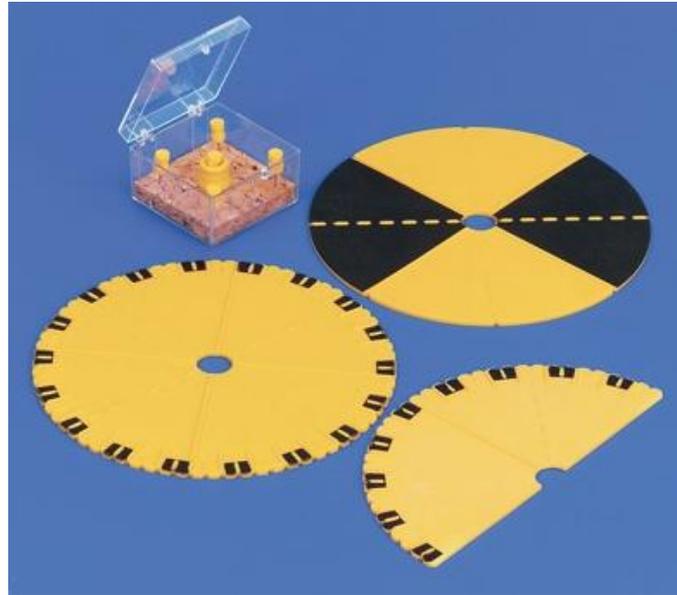


Positive Eye

Drawing and Measuring Angles Using Tactile Methods

Understanding the concepts of Angles should be introduced by using the child's own body to teach 'full', 'half', 'quarter' turns etc and then teaching key angles of 360° , 180° , 90° , 45° etc. In this way the initial use of the 360° protractor is recommended. A vertical format of drawing and measuring angles can be developed into the traditional horizontal format once key learning has been established. In this way Bearings can also be introduced. A 'kit' should comprise a range of materials enabling the development of the construction and measuring of tactile angles. Some examples follow:-

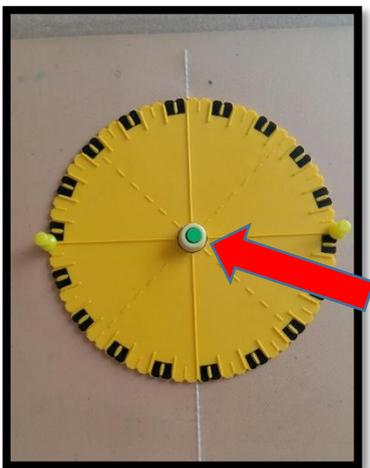




Drawing Angles -



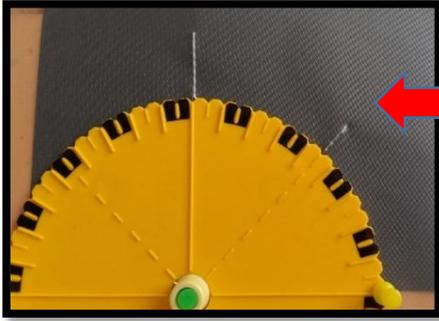
1. Use embossing film, an embossing tool and tactile ruler to draw a vertical line.



2. Fix pin onto point along line. Place 360° protractor over pin and fix pin 'sleeve' over the top to secure. Fix pins in ridges around protractor at points where they won't interfere with drawing but will fix the protractor in place.

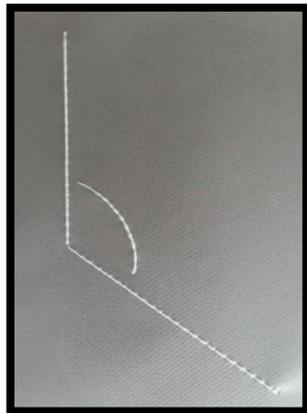
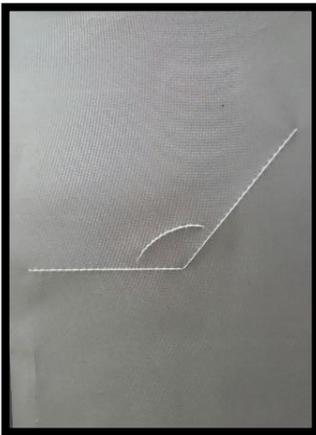


3. Count around using tactile ridges in 5° intervals to mark on film required angle.

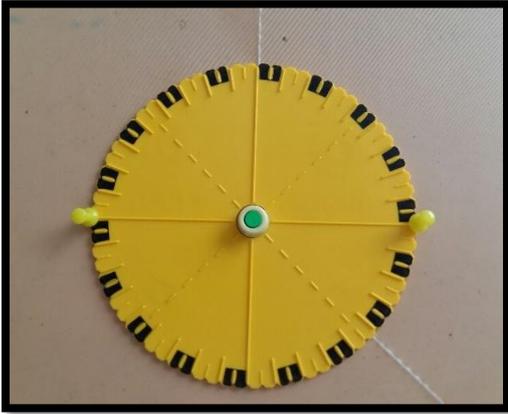
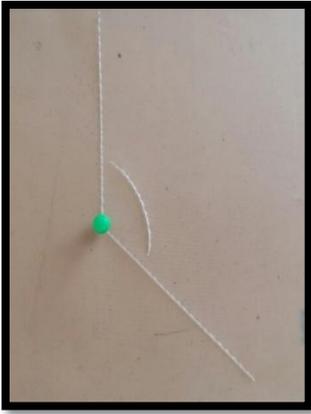


4. Extend tactile line. Remove protractor, leaving central pin only. Join pin to tactile mark using ruler and embossing tool to complete angle.

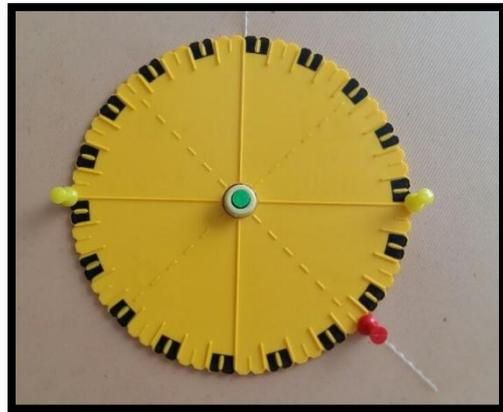
Measuring an Angle



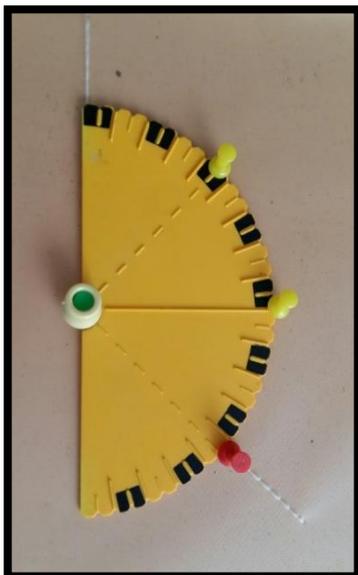
1. Angle to measure is presented in horizontal format.
2. Rotate angle to give vertical format.
3. Put pin in point of angle to be measured.



4. Place 360° Protractor over pin and place 'cover slip/sleeve' over the pin and secure protractor with solid tactile line against vertical line. Secure with pins.



5. Secure pin or blutac on angle point to be measured. Count tactile notches in groups of 5° from the vertical point to the pin.



6. More advanced methods can use the 180° protractor and then move on to horizontal format when understanding is embedded.

