GREATER ESSEX COUNTY District School Board

GECDSB

MATH KIT

TEACHER'S RESOURCE GUIDE

SENIOR S

Why Use Manipulatives?

- ☑ *Make students' thinking visible, so that everyone can see it, talk about it and learn from it;*
- ☑ *Provide a context for developing mathematical concepts;*
- ☑ *Help students explore, think about, and talk about mathematics;*
- ☑ *Help students construct meaning and see patterns and relationships;*
- ☑ *Allow students to more easily test, revise, and confirm their reasoning;*
- ☑ *Help students make connections between concepts and symbols;*
- ☑ *Help students talk about the math, with the result that teachers have a basis for assessing students' understanding and can make programming decisions based on their observations.*

A Guide to Effective Instruction in Mathematics, K – 6, volume 3

Manipulatives are necessary tools for supporting the effective learning of mathematics by all students. These concrete learning tools invite students to explore and represent abstract mathematical ideas in varied, concrete, tactile, and visually rich ways.

Moreover, using a variety of manipulatives helps deepen and extend students' understanding of mathematical concepts. The Ontario Curriculum, grades 1-8, Mathematics, 2005

GECDSB believes in the value of using math manipulatives as part of an effective math program and so math kits have been purchased to support student learning. This resource guide provides details of items within the kits.

Math Kit Supplements

are available to order through Medianet.
Details about these materials, quantities, time, etc. can be found at
www.mediacentre.ca:
kit #41000.

This will allow any teacher to order supplementary materials for a specific content exploration or unit for a time period through the year.

Once a classroom teacher has established a Medianet account, they can request a math kit appropriate for their division. Kits must be returned to the resource center every June for refurbishment. We are reasonable and understanding about some materials going missing when kits are in use. If more than an acceptable amount is missing, the school will be charged for the materials and credit applied when returned.

Questions to extend student learning while using manipulatives include:

"So you used one strategy here, is there another strategy you could use to represent how you could work on this problem?"	**seeking an alternative method**
"What do you think we should do next?"	**posing new challenges**
"Ok, do you want to explain to your partner what you are doing?"	**promoting group interaction**
"Why does this make sense to you?"	**encouraging sense-making**

Source: http://learnteachlead.ca/projects/works-making-space-students-think-mathematically-pdf/

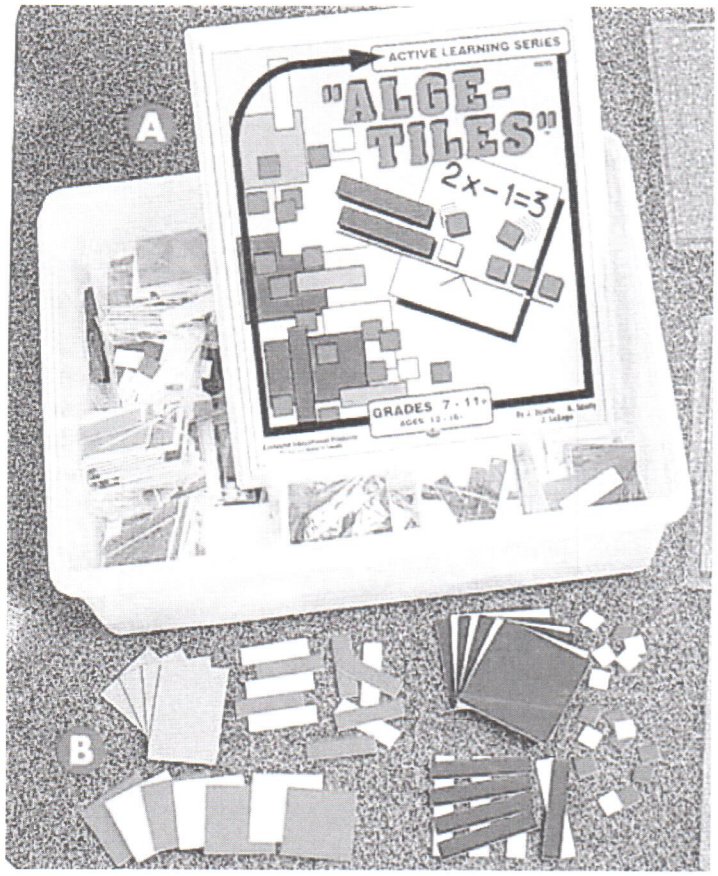
Senior Math Kit Teacher's Resource Guide
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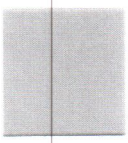
189 Algebra Ball
(inflatable ball)



165/167 Alge-Tiles Introductory Class Set



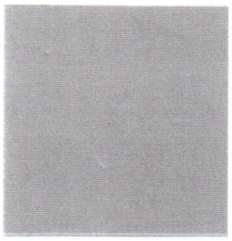
"Y" Set
(25 pieces total)


X6

X12


X7

"X" Set
(43 pieces each set)


X6

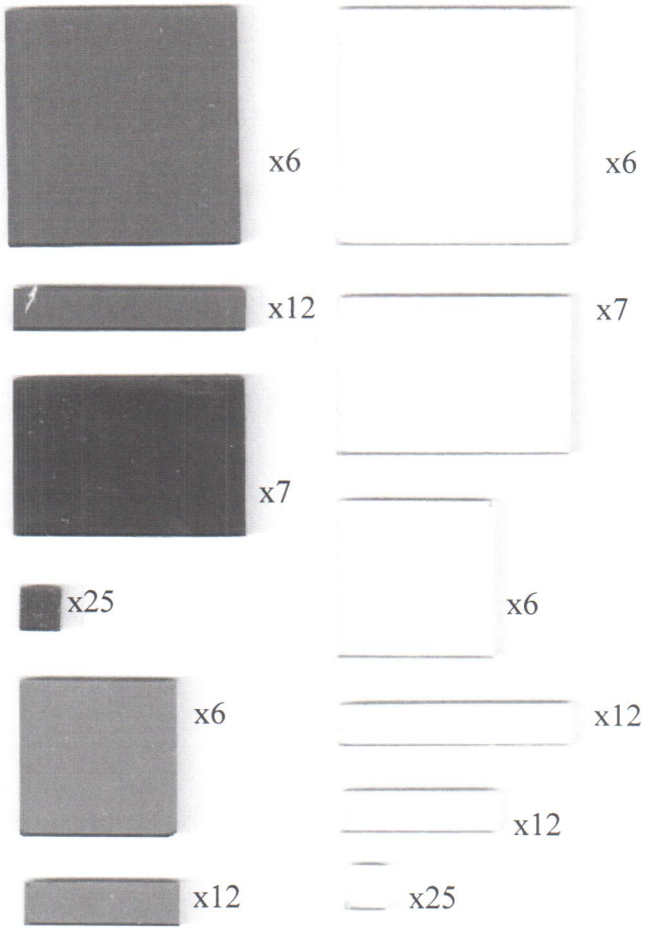

X25


X12

183 – *Overhead* Alge-Tiles (set/136)

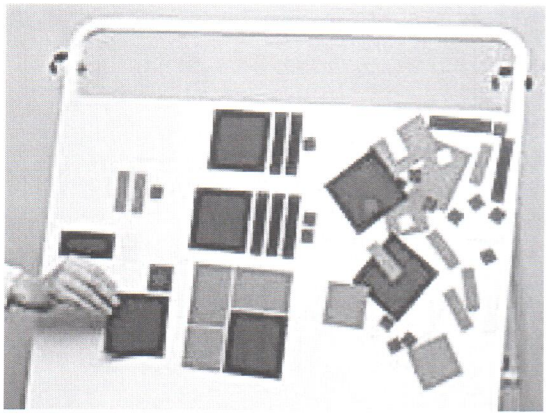
**various sizes/colours of plexi-glass, some with plastic tray

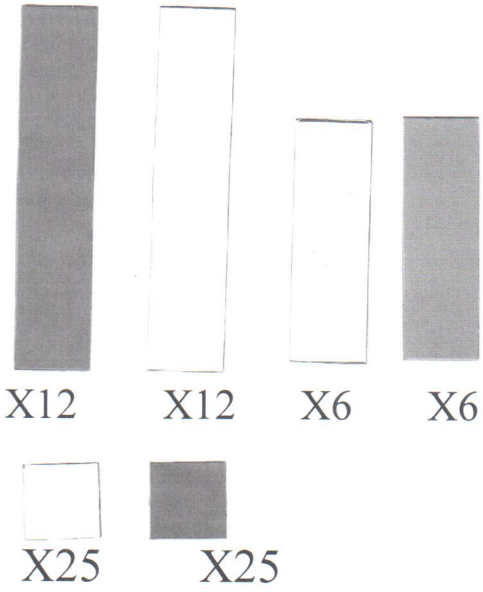




166 Alge-Tiles Magnetic Set (set/86)

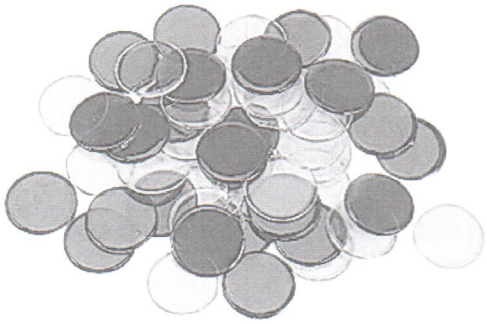
**current sets: 2 sizes of rectangles and small squares





114 Counters (*overhead*, 2 colours, circle)

**various colours



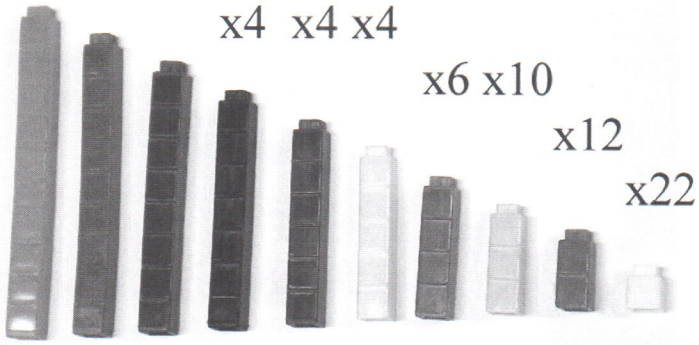
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168 – Cuisenaire Rod Sets (set/74)

192 – *Overhead* Cuisenaire Rods (set/60)

SETS:

Reg. x4 x4 x4 x4 x4 x4 x6 x10 x12 x22



OH x4 x4 x4 x4 x4 x4 x4 x4 x8 x20

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121 – Dice (regular)

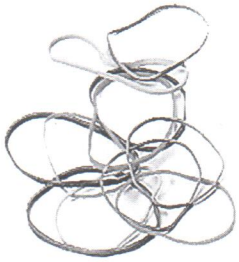
**any colour, dots only



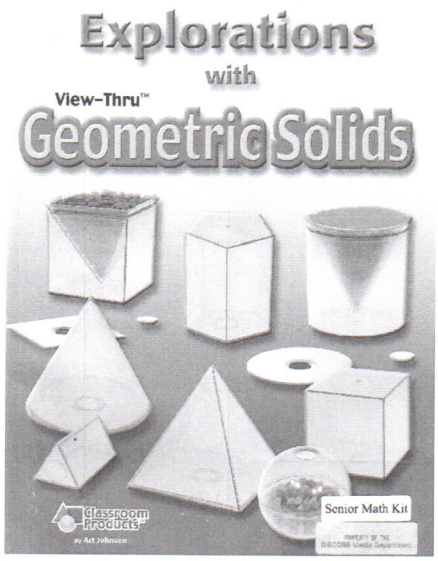
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123 – Elastics (coloured)

**various colours in small bag



184 – Explorations with Geometry Solids
(manual)



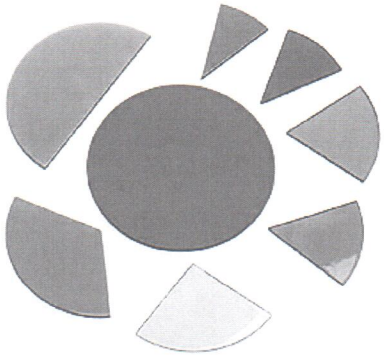
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187 – Fraction Ball
(inflatable ball)

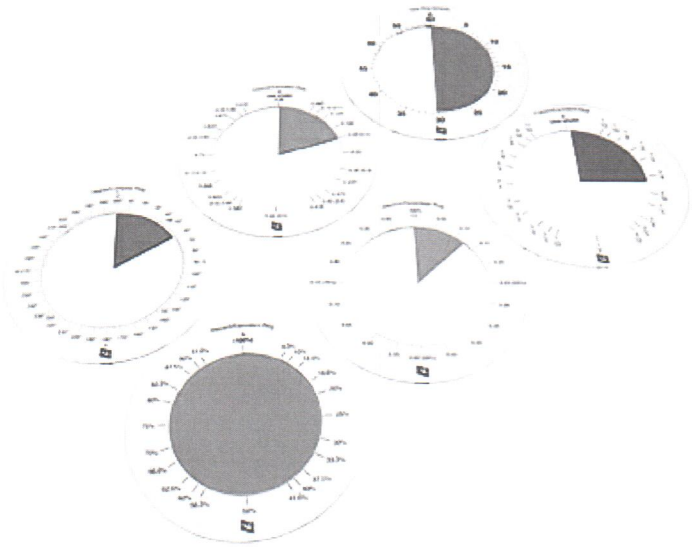


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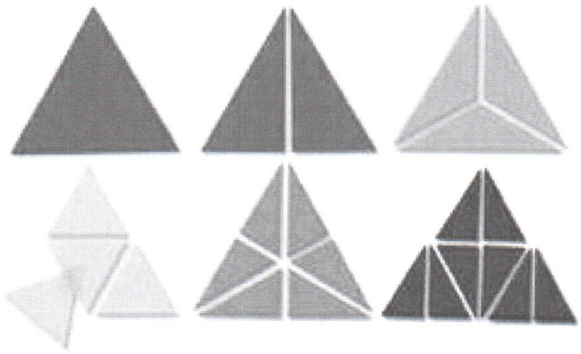
147 – *Overhead* Fraction Circle (set/9 layers)
**some sets have only 6 layers



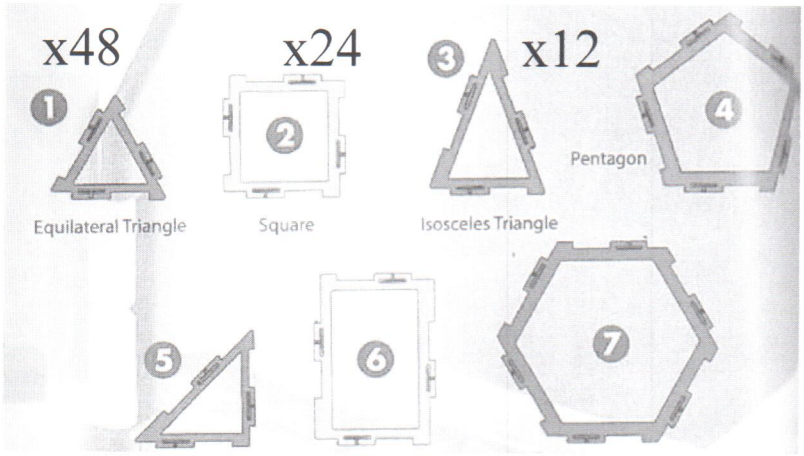
169 – Fraction Ring (set/6) – set is rings only, no circle parts



185 – Fraction Triangle (set/6 layers)

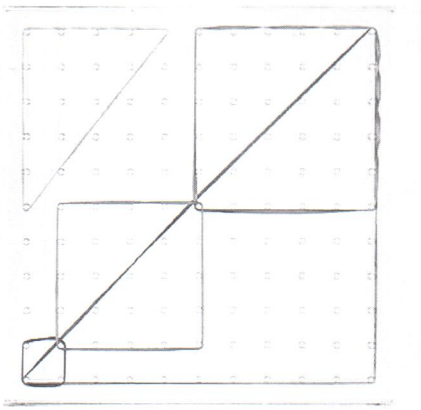


#129 – Frameworks - Large Set (set/138)

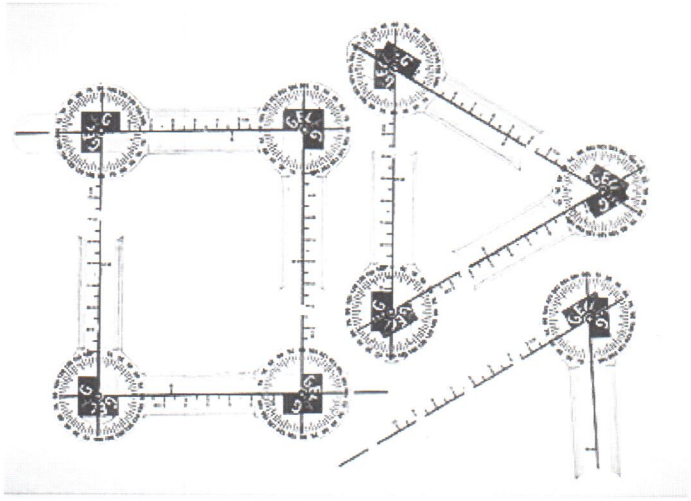


**Plus 6 LARGE Equilateral Triangles.

130 *Overhead* Geoboards
(11x11 pin)

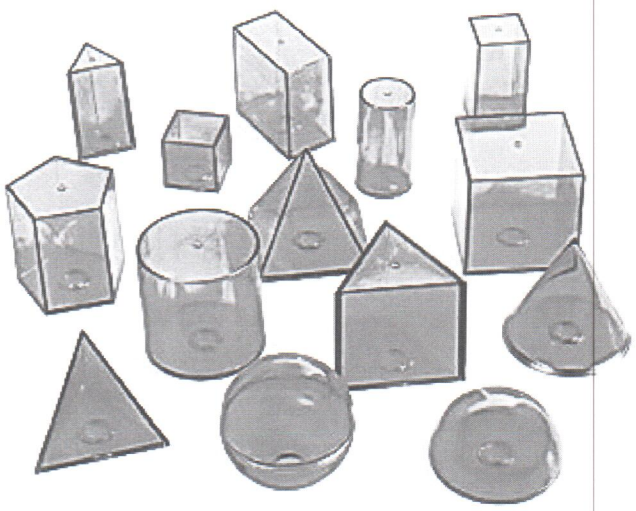


172 Geolegs



173 Geometric Solids – Transparent (set/14)

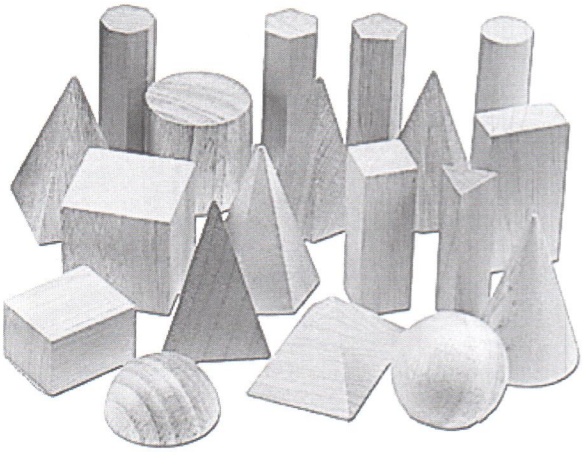
**assortment of shapes
**bottom is removable



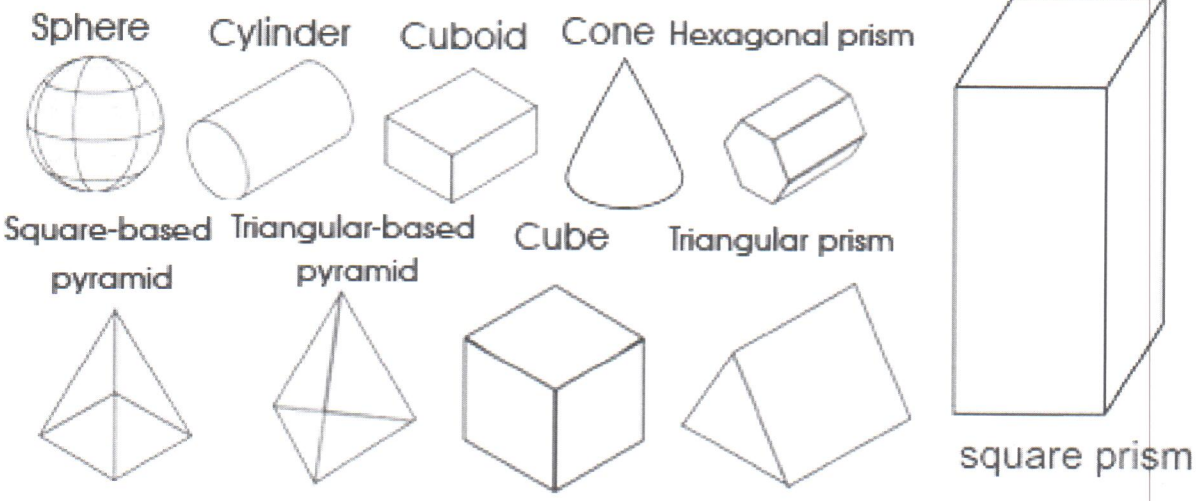
133 Geometric Solids – Wooden (set/15)

**assortment of shapes

**some sets may have more than 15



(shape guide - use list below for set contents)

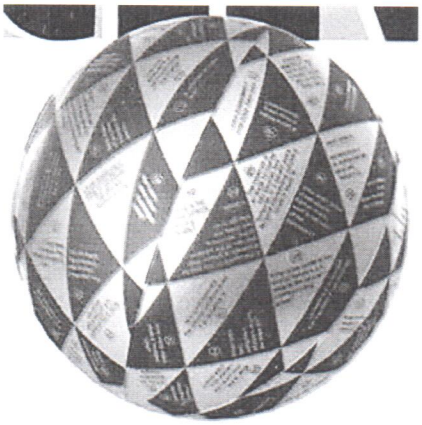


CORE set must contain 1 of each:

Cone
Cuboid – long
Cylinder – fat/short
Hexagonal (6 sided face) Prism
Pentagonal (5 sided face) Prism
Square (4 sided face) Prism
½ Sphere
Triangular-based Pyramid
Cube
Cuboid - short
Cylinder – skinny/long
Octagonal (8 sided face) Prism
Square Based Pyramid
Sphere
Triangular (3 sided face) Prism

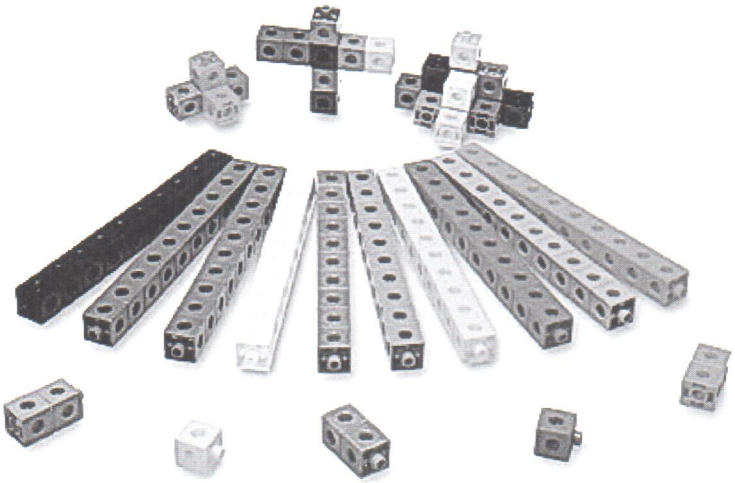
shapes should be similar size (fitting in palm) and not painted or decorated

188 Geometry Ball
(inflatable ball)



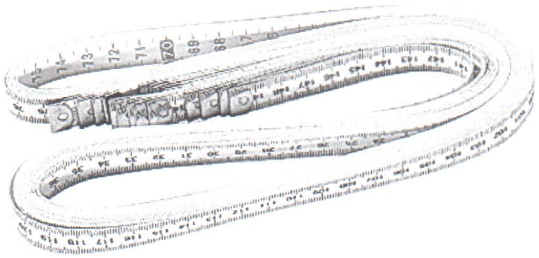
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116 – Hex-a-link Connecting Cubes
**variety of colours
**should be multi-directional connecting

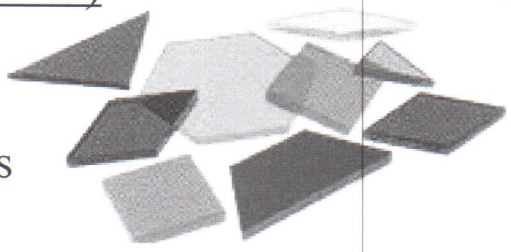


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139 – Measuring Tapes

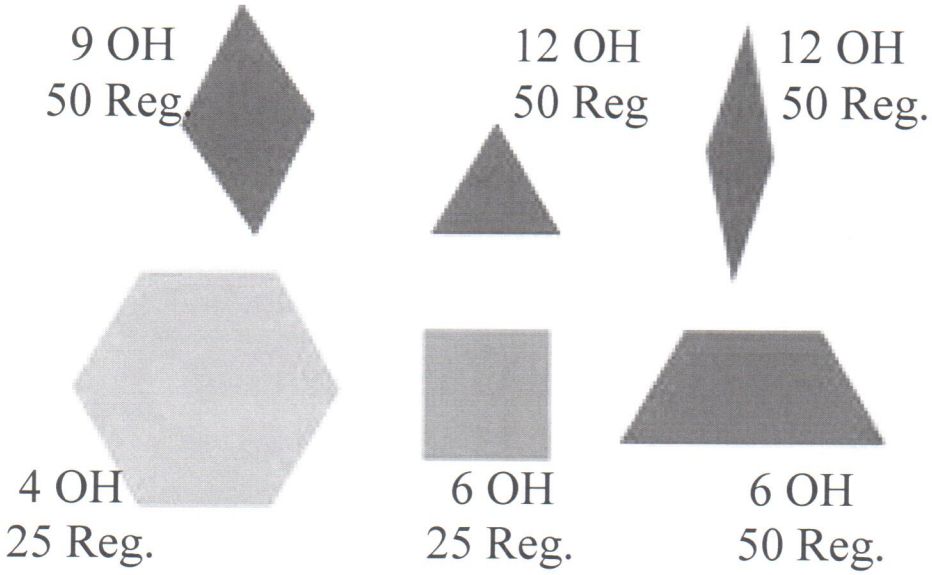


149 – *Overhead* Pattern Blocks (set/49)



152 – Pattern Blocks (set/250)

**can be plastic or wood – separate types

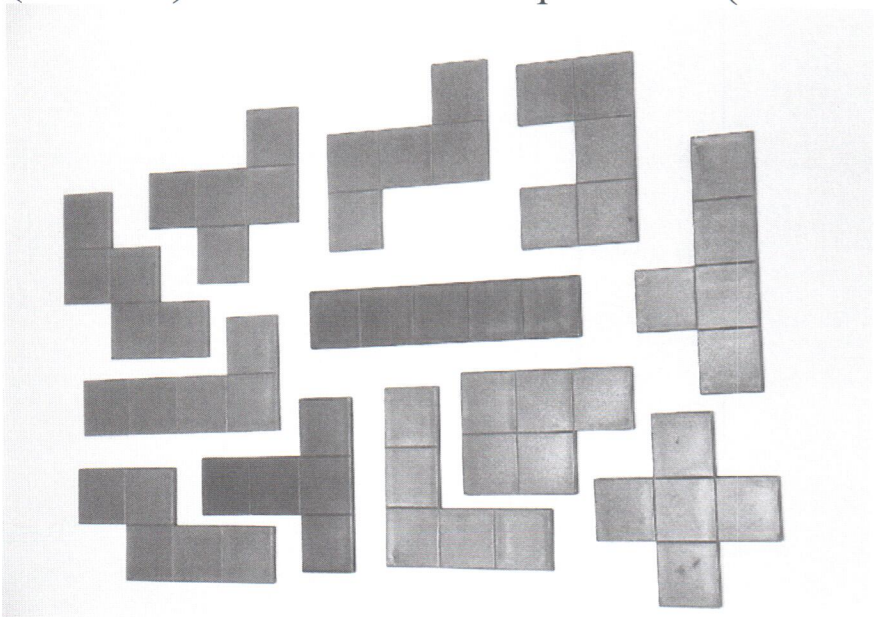


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175 – *Overhead* Pentominoes

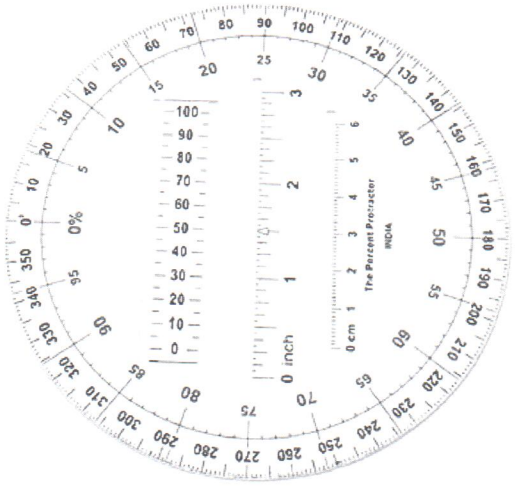
177 – Pentominoes –must be SCORED/have lines

(sets/12) *one of each shape below (one colour per set)



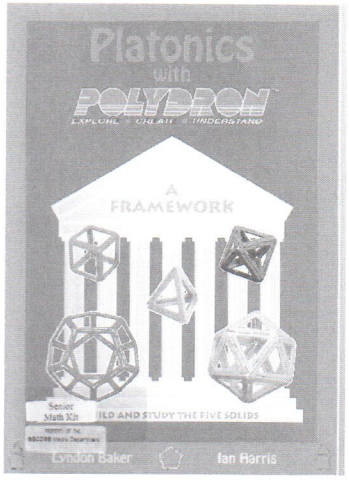
178 – Percent/Circular Protractor

**should have both Percent and Degrees marked



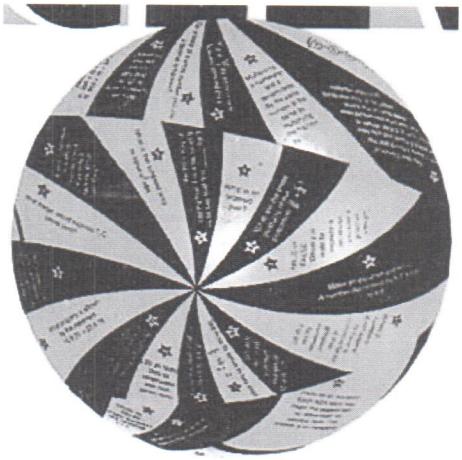
193 – Plantonics with Polydron

(Manual)

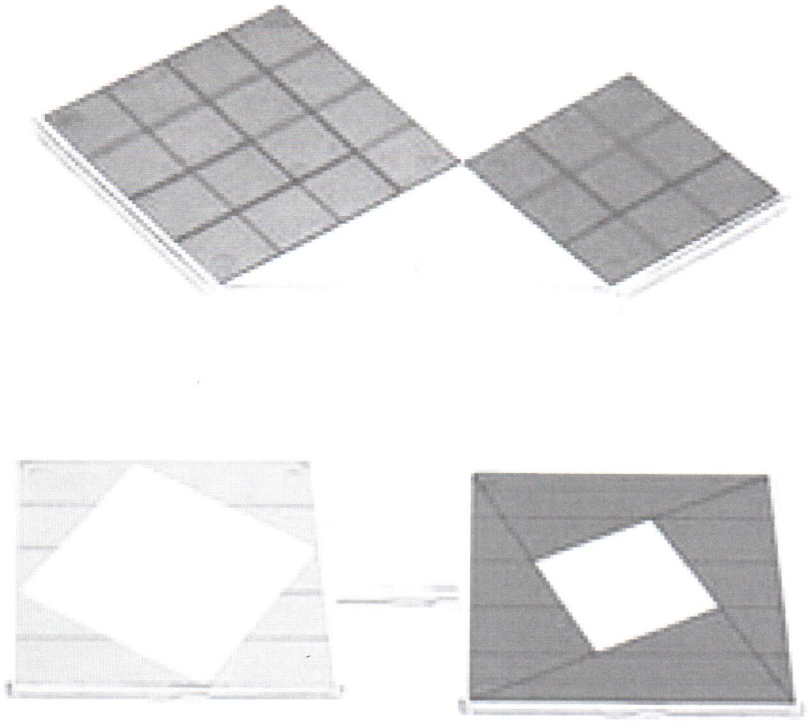


190 – Pre-Algebra Ball

(inflatable ball)



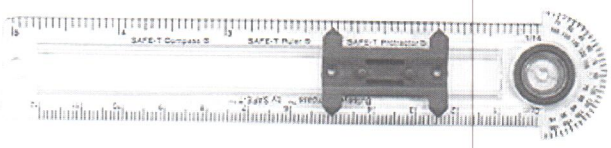
186 – Proofs of Pythagoras (set/3)



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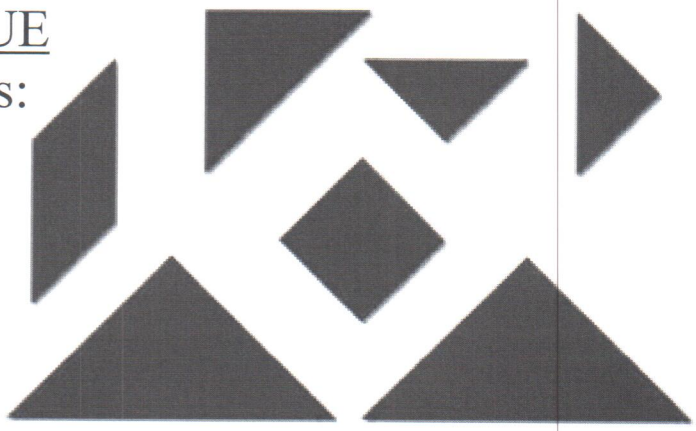
176 *Overhead* Safety Compass – clear

179 Safety Compass – white



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151 – *Overhead* Tangrams
163 – Tangrams - OPAQUE
(sets/7) **each set contains:



180 – Teach-Timer



#181 Trundle Wheel

**various colours

**wheel, arm/handle, and bolts are included to attach properly



Math Kit Supplements

Below is a list of Math Kit Supplements available to order through Medianet kit #41000.

www.mediacentre.ca

Any teacher may order materials for a specific content exploration or unit.

Abacus
Algebra Ball (inflatable)
Algebra Tiles (sets of 35)
Alge-Tiles:
"x" (set/43)
"y" (set/25)
Manual
Alge-Tiles Magnetic (set/86)
Attribute Blocks -GIANT (set/60)
Attribute Blocks-Regular (set/60)
Base Ten Blocks:
cubes, flats, rods, or units
Base Ten Mats (2 sided)
Base Ten Stamps (set/4)
Beakers (tri-pour, set/6)
Bear Counters (set/80)
Calculators
Caliper Bow
Cards (decks of playing cards)
Counters (2 colour/ 2 sided)
Counters (bingo, multi-coloured, circle, overhead)
Counters (bingo, two-coloured, circle, overhead)
Counters (square tiles, multi-coloured)
Cubes (not connecting)
Cuisenaire Rods (set/74)
Dice (soft, large, pair of)
Dice (money, pair of)
Dice (probability, multi-colour)
Dice (regular, dot)
Dominoes (sets/28)
Explorations with Geometric Solids - Manual
Fraction Ball (inflatable)
Fraction Factory (set/51)
Fraction Ring (set/6)
Fraction Strips (set/51)
Fraction Triangles (set/6 layers)
Frameworks - equilateral triangle
Frameworks - hexagons
Frameworks - rectangle
Frameworks - square
Frameworks - pentagons
Geoboards (overhead, 11x11 pin)
Geoboards (opaque, 5x5 pins)
Geologs
Geometric Solids (wooden, set/15)
Geometric Solids (colour, foam, set/12)
Geometric Solids (transparent, set/14)
Geometry Ball (inflatable)
Graph mat
Hex-a-link Connecting Cubes
Hundreds Wall Chart (with number/functions cards set)
Links
Measuring Cups (set/3)
Measuring Spoons (set/5)
Measuring Tapes (soft/cloth)
Miras
Mirrors (small, plastic)
Money Set (40 bills/120 coins)
Money Stamps (coins only, set/6)
Number Line Mat (walk on)
Overhead Alge-Tiles (set/136)
Overhead Attribute Blocks (set/30)
Overhead Base 10 Blocks (set/31)
Overhead Cuisenaire Rods (set/60)
Overhead Fraction Circle (set/6 layers)
Overhead Fraction Square (set/6)
Overhead Pattern Blocks (set/49)
Overhead Pentominoes (set/12)
Overhead Safety Compass
Overhead Shape Recognition (set/9)
Overhead Tangrams (set/7)
Pattern Blocks – MAGNETIC (set/200)
Pattern Blocks (set/250)
Pentominoes (scored, set/12)
Percent/Circular Protractor
Platonics with Polydron - Manual
Pre-Algebra Ball (inflatable)
Proofs of Pythagoras (set/3)
Protractors
Safety Compass
Sorting Bowls (set/6 colours)
Sorting Manipulatives:
-Dinosaurs
-Farm Animals
-Fruit
-Insects
-Transportation
Spinners (transparent)
Spinners (colour)
Stacking Pots (nesting, set/6+)
Tangrams (set/7)
Teach-Timer
Timers (sand or tocker, set/3)
Trundle Wheel
Try-it Pentominoes - Manual