DICE GAMES FOR P3 AND P4 STUDENTS – ONLINE ZOOM LESSON

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INTRODUCTION

- Some of the games are adapted from the book **骰樂無窮——小學生骰仔學數學**
- The games in this mini-workshop are designed for online ZOOM lesson in training student different skills in the 'Number' Strand.
- Without the 10-sided dice, teachers can use virtual dice https://dice.virtuworld.net/ → number of sides → number of dice → CAST
- There many different templates for folding dice. Simply keyword search for 'Folding dice'; 'Folding 10-sided dice'.
- Dice can be printed by 3D printers. Search for 'thingiverse d4 d6 d8 d10 d12 d20'. Here is a good one https://www.thingiverse.com/thing:94738.

GAME 6 IN THE LAST WEEK (P2 MULTIPLICATION)

- Level 3: Throw 2 10-sided dice.

  Type the product of the two numbers in the chat room.
- (The dice can be replaced by 12-sided dice. Advanced learners might use 20-sided dice)

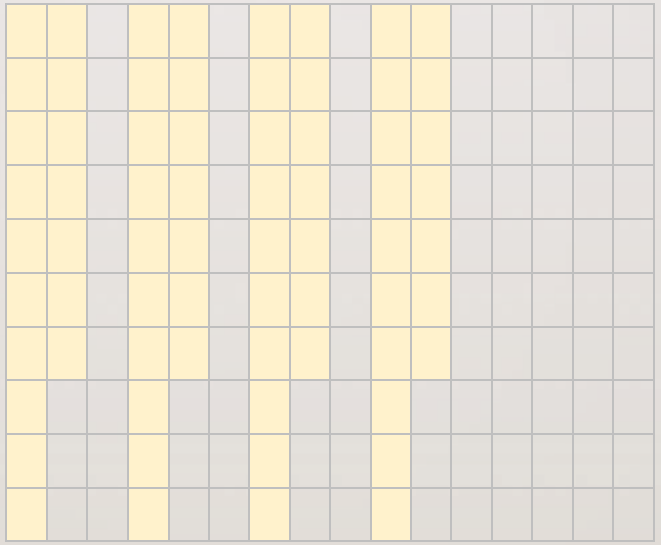
- Multiplication facts are essential in many different topics in P3 and P4. It is an urgent need to help those students who have not yet recall the multiplication facts.
- The multiplication table can be used in remedial classes in P3 and P4 in helping students to memorize multiplication facts.
- Additional resource: Making a multiplication table booklet https://topnotchteaching.com/lesson-ideas/times-tables/

GAME 1 – P3 MULTIPLICATION (2-DIGIT NUMBER X 1-DIGIT NUMBER)

- Throw one 20-sided die to obtain a 2-digit number and one 10-sided die.
- Type the product in the chat box.
- It is suggested that students are using column form in multiplication with grid paper.

GAME 1 – P3 MULTIPLICATION (2-DIGIT NUMBER X 1-DIGIT NUMBER)

- Variation 1
- The game can be used in introducing different representations and column form of multiplication.
- The figure shows an example.
- It helps student bridging from addition to multiplication by attending to the place value of numbers. It also splits a 2-digit number before we do multiplication in column form.

	Diagrams	Column Form	Column Form
17 x 4 =		10 + 7 x 4 40 + 28	17 x 4 40 28 68

GAME 1 – P3 MULTIPLICATION (2-DIGIT NUMBER X 1-DIGIT NUMBER)

- Variation 2

Throw 2 10-sided dice to obtain a 2-digit number, The red one represents the ten digit and the yellow one represents the unit digit;

Throw a 10-sided dice to obtain a 1-digit number.

Type an expression of the multiplication of the 2 numbers and find the product.

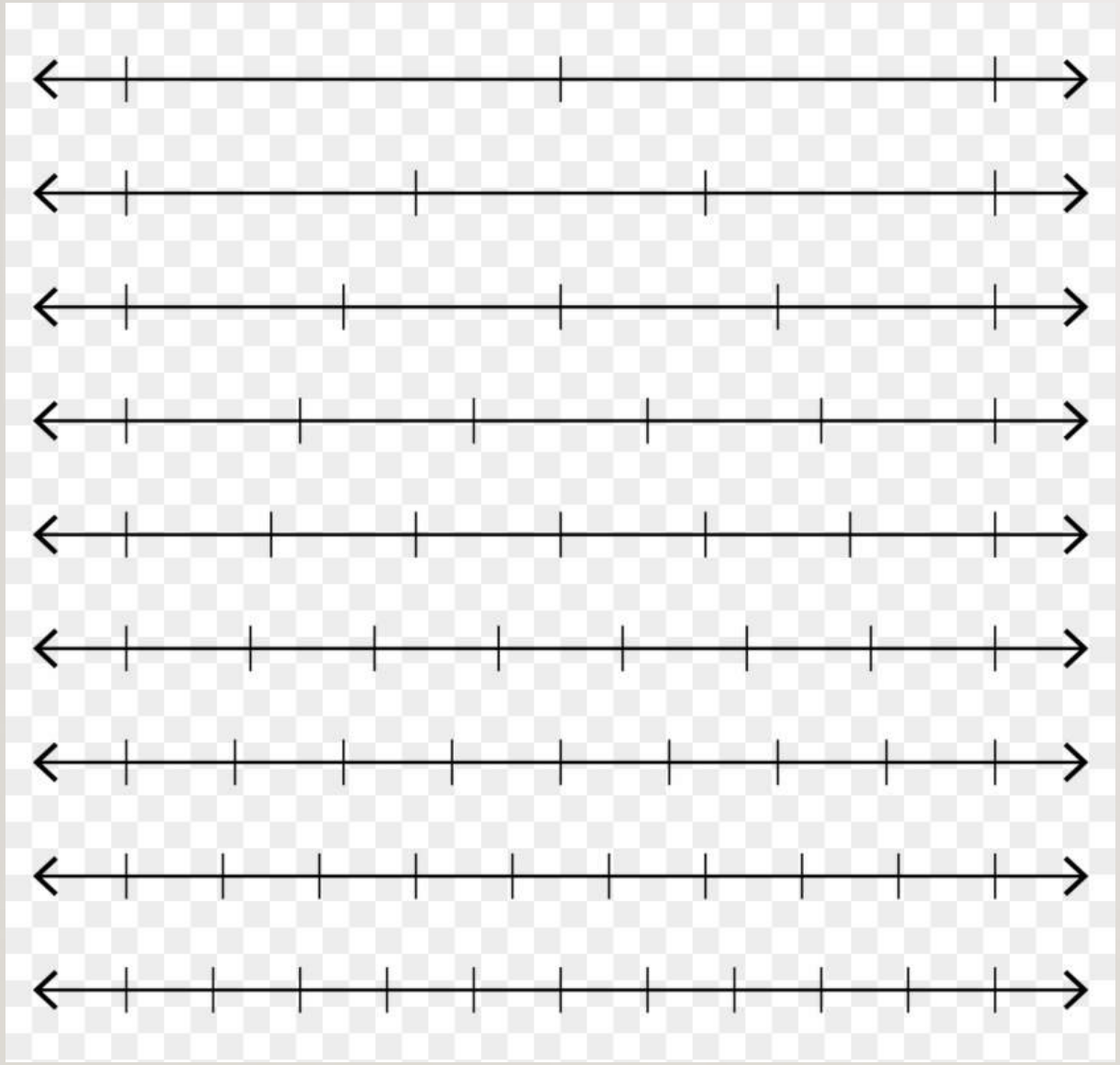
For example, 46 x 7. Subitizing skill can be taught with the chant 28; 42; 322. This is a very useful skill because students need to find the results of multiplication of 2-digit number and 1-digit number in many different topics in senior forms.)

GAME 2 – P3 FRACTION (DIFFERENT GRAPHICAL REPRESENTATIONS OF FRACTION)

- Throw two 10-sided dice. The smaller number represents the numerator of a fraction and the larger number represents the denominator of the fraction.
- Type the fraction in the chat room (You don't need to simplify the fraction).
- Choose the tool (the number line, fraction circle or fraction strips) that you would like to use to represent the fraction.

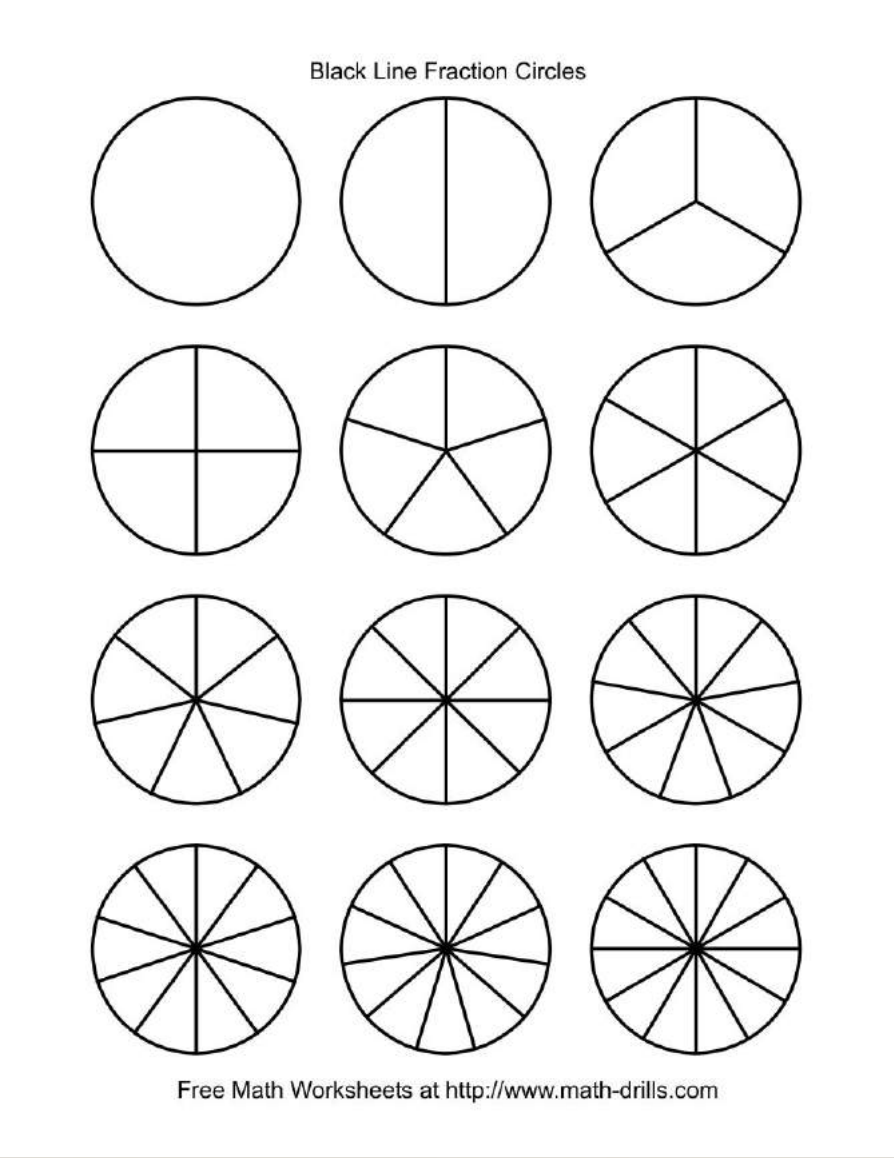
Remarks:

This game helps student to get used to different graphical representation of fraction. The understanding of a whole is important.



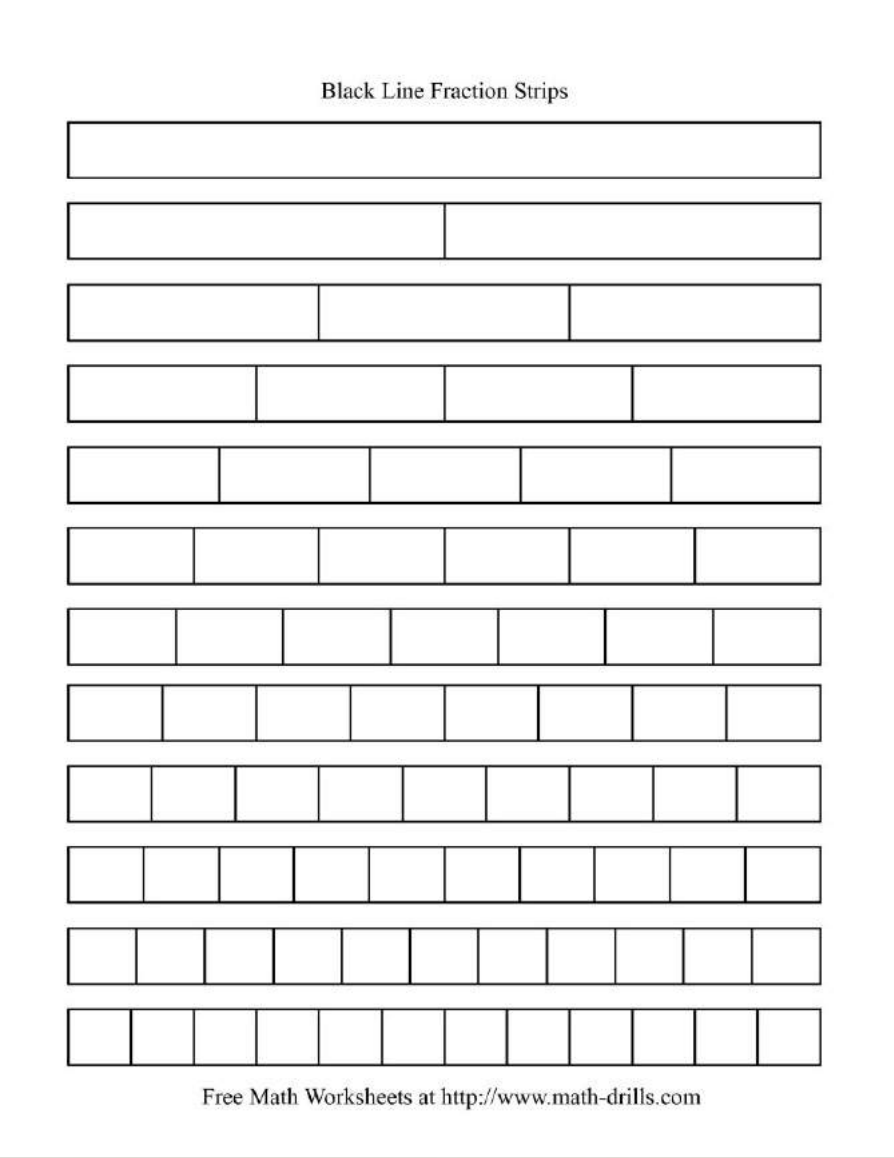
GAME 2 – USING NUMBER LINE

- Mark down a whole on one of the number lines.
- Shade the part representing the fraction on a number line.



GAME 2 – USING FRACTON CIRCLE

- Mark down a whole on one of circles.
- Shade the part representing the fraction on a circle.



GAME 2 – USING FRACTION STRIPS

- Mark down a whole on one of the fraction strips.
- Shade the part representing the fraction on a fraction strip.

GAME 3 – P3 ARITHMETIC OPERATION (MAKING 24)

- Throw 4 10-sided dice.
- In one minute, write down as many arithmetic operation expressions that use all 4 numbers to form 24.
- Type the arithmetic expression in private chat room to teachers. Each correct arithmetic expression scores 1 point. The first 5 students sending the correct arithmetic expression to teacher score 1 extra point.
- After several rounds, the student who gets the highest scores wins the game.
- Teachers can more than about the mistakes in the arithmetic operations made by students.

GAME 4 – P4 CONCEPT OF DIVISIBILITY (2, 3, 5, 10)

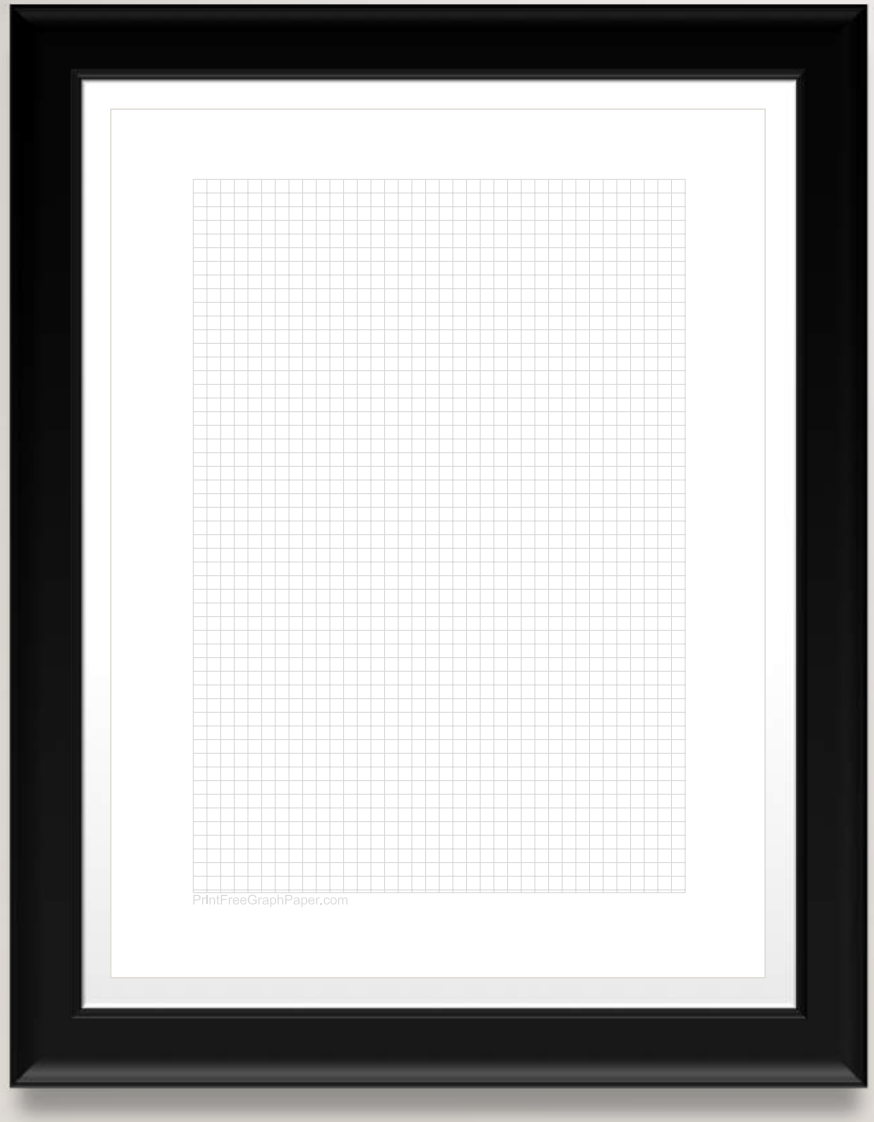
- Throw 2 10-sided dice to form the first 2-digit number. The red one represents the ten digit and the yellow one represents the unit digit.
- Type the 2-digit number in the chat room.
- Invite students to explain how he or she knows the divisibility of the 2-digit number by 2, 5,10 and 3.

This can be done in an inductive way by providing students with ample examples before prompting them to explain their conjectures.

GAME 5 – P4 PERIMETER AND AREA OF RECTANGLE

- Step 1: Each student throw 2 10-sided dice. (or throw virtual dice https://dice.virtuworld.net) The two numbers represents the length and breadth of a rectangle.
- Step 2: Draw the rectangle on the given grid paper.
- Step 3: Find the perimeter (or area) of the rectangle. (Students may use count the number of units (or number of grids) to obtain the perimeter (or area).
- Repeat step 1 to step 3 5 times.
- Ask if any students can find a general rule (or a conjecture) in finding the perimeter (or area) of rectangle.

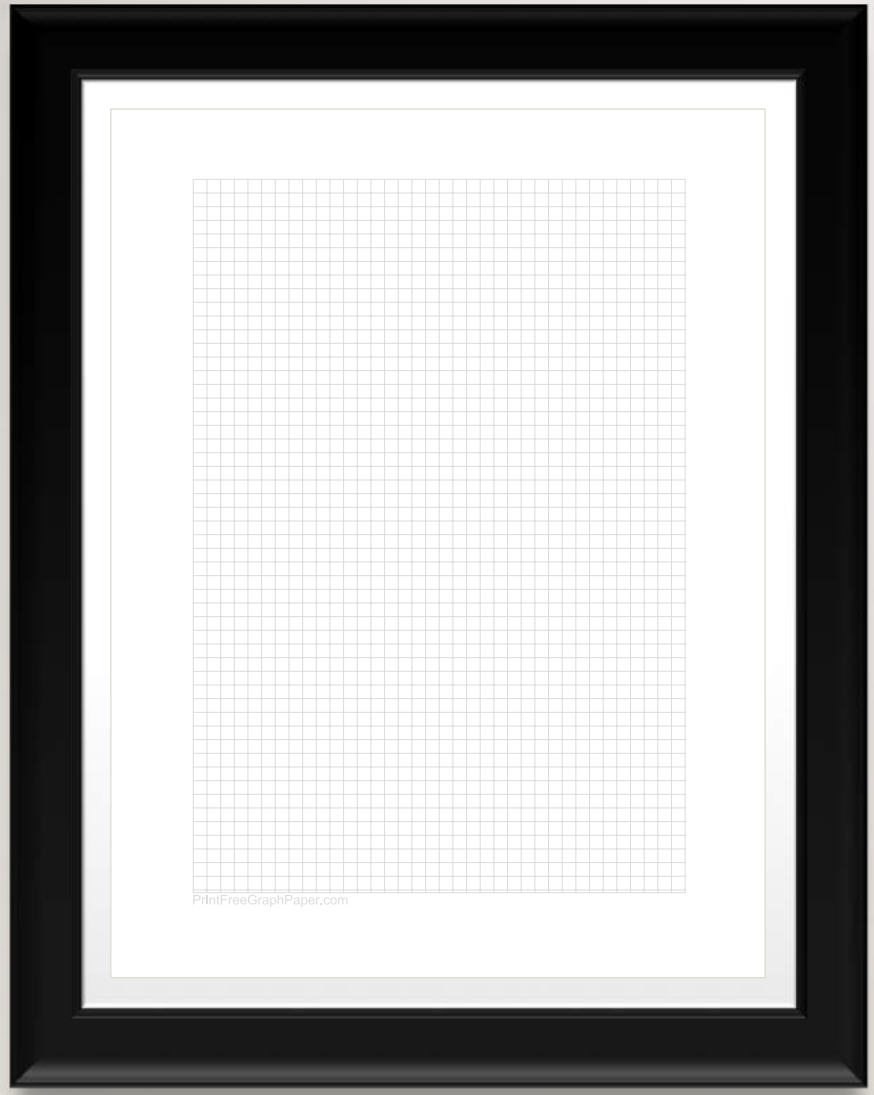
(This is an inductive way in learning the formula of perimeter (or area) of a rectangle.)



GAME 5 – P4 PERIMETER AND AREA OF RECTANGLE

GAME 6 – PERIMETER OF IRREGULAR SHAPE

- Throw 2 10-sided dice. The numbers are the lengths of the sides of a rectangle.
- Throw 2 10-sided dice again. The numbers are the lengths of the sides of another rectangle.
- On grid paper, draw an irregular shape by sticking the two rectangles together.
- Find the perimeter of the irregular shape. Type the answer in the chat room.
- After several rounds, ask if students can explain a good way in finding the perimeter. (Leading to the method of pushing a side to form rectangle.)



GAME 6 – AREA OF IRREGULAR SHAPE

OPEN DISCUSSION

- Comments?
- Suggestions?
- Any particular math skills that you would like to teach your students?