Session on Toy Pedagogy

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Teachers Questionnaire Part 1

"Playful pedagogies are central to early childhood education as they support both developmental and academic outcomes through playful learning."

—Fisher et. al., 2010; Pyle et al., 2017

Pedagogy for Foundational & Preparatory Stages

- NEP 2020 emphasizes play-based learning for ages 3-11, harnessing the educational potential of toys.
- It mandates formative and summative assessments, with a strong early education focus.

Assessment as highlighted in NCFSE

- **Assessment of Learning:** Summary of a Child's thinking or achievement at one point in time (Black et. al., 2011)

- **Assessment as Learning:** An active learning process that occurs when children reflect and conduct a self-assessment on their own learning (Dann, 2014; Earl, 2003).

- **Assessment for Learning:** Uses appropriate, adequate, accurate evidence of what children can do (Graffin, 2019) to inform decision making and to adapt teaching to meet the children's learning needs (Black et. al., 2011)

Let's Play a Game

Arithmetic Bingo

- **Game Rules:** Each player receives a Bingo sheet with printed numbers. Two numbers are called, and players must use these numbers for 4 mathematical operations to find 4 new numbers.

- **Winning the Game:** Success is determined by the players who achieve the highest number of row/column cuts through these operations.

- **Game Preparation for teachers:** The game only requires printing Bingo sheets once and is suitable for up to 60 students in traditional classrooms.

Arithmetic Test with Bingo

Tambola A					
	17	24	95		2
12	36		3	432	
1500		48		45	29

Tambola B					
	12	24	57		6
65	25		3	432	
30		20		125	5

Tambola C					
	3	28		14	147
65	95		21	1700	
	13		7	37	22

Arithmetic Test with Bingo

Number Pair 1	12	36

Arithmetic Test with Bingo

Number Pair 1	12	36
Pair 2	5	25

Arithmetic Test with Bingo

Number Pair 1	12	36
Pair 2	5	25
Pair 3	7	21

Arithmetic Test with Bingo

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Tambola C					
	3	28		14	147
65	95		21	1700	
	13		7	37	22

			Addition	Subtraction	Multiplication	Division
Tambola A	12	36	48	24	432	3
Tambola B	5	25	30	20	125	5
Tambola C	7	21	28	14	147	3

Assessment Matrix for evaluating any Toy / Game for the Classroom

SR	Assessing Parameter for the Game / Toy / Play
1	Is the game **an effective way to teach** in the classroom ?
2	Is the game **an effective way to practice for students** in the classroom ?
3	Is the game **an effective way to learn** in the classroom ?
4	Is the game **an effective way to assess the child** in the classroom ?
5	**Is the game fun** for the child ?
6	**Does the game take a lot of time to prepare** for the teacher ?
7	**Is the game feasible for the class of 50 to be used for the classroom** ?

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7	**Is the game feasible for the class of 50 to be used for the classroom** ?

Assessment Matrix for Snake and Ladder to teach Mathematics

SR	Assessing Parameter for Snake and Ladder	Response	Comments
1	Is the game an effective way to teach in the classroom ?	No	It can add up to 6 numbers in any number and thus limited learning.
2	Is the game an effective way to practice for students in the classroom ?	No	Addition operation in any number by number up to 6 is possible. That makes it practice of addition only.
3	Is the game an effective way to learn in the classroom ?	No	If a player does not know addition then player can not participate.
4	Is the game an effective way to assess the child in the classroom ?	No	Assessment of players in a group of 4 possible and it is not feasible for a class of 50.
5	Is the game fun for the child ?	Yes	4-5 players can play it with fun.
6	Does the game take a lot of time to prepare for the teacher ?	No	No preparation for the teacher is required to use it in the classroom.
7	Is the game feasible for the class of 50 to be used for the classroom ?	No	4-5 players can play and for class of 50 multiple games are required.

Assessment Matrix for Bingo to teach Mathematics

SR	Assessing Parameter for Snake and Ladder	Response	Comments
1	Is the game an effective way to teach in the classroom ?	Yes	It can be used to practice 4 mathematical operations and effective up to certain extent.
2	Is the game an effective way to practice for students in the classroom ?	Yes	It can be used to practise addition,subtraction, multiplication and division skills of student.
3	Is the game an effective way to learn in the classroom ?	No	It does not facilitate learning and students can practice 4 mathematical operations.
4	Is the game an effective way to assess the child in the classroom ?	Yes	It can assess the addition,subtraction, multiplication and division skills of student.
5	Is the game fun for the child ?	Yes	Class of 50 can play with fun.
6	Does the game take a lot of time to prepare for the teacher ?	No	30 mins are required for one time to make and print the sheets then it can be used.
7	Is the game feasible for the class of 50 to be used for the classroom ?	Yes	Class of 50 can play with fun.

Let's Learn Some Geometry

Shapes and Angles

Curricular Goal: Identifies, compares, and analyses attributes of two- and three-dimensional shapes and develops vocabulary to describe their attributes/properties.

Learning Outcomes for class 5

1. Folds papers (Origami) to make/form 3D shapes, i.e., cylinder, cone, sphere, cube, cuboid) and identifies, and determines their corners, surfaces, and edges.
2. Describes 3D shapes (cylinder, cone, sphere, cube, cuboid) by their characteristics.
3. Describes the idea of angles and shapes.
4. Finds the relationship between angles and the shape of a polygon.
5. Classifies angles into right angle, and below and above right angle, and represents the same by drawing and tracing.
6. Makes a degree clock or pocket protractor to measure angles around them.

Survey for Teachers

Instruction for Teachers (For Hands-On)

Origami with repeated patterns
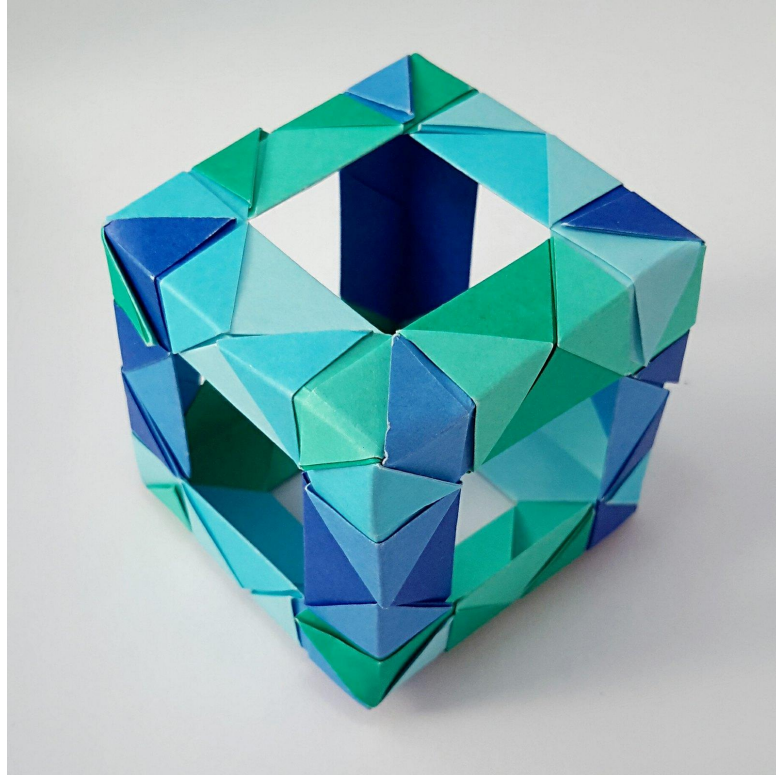
Origami with repeated patterns

1
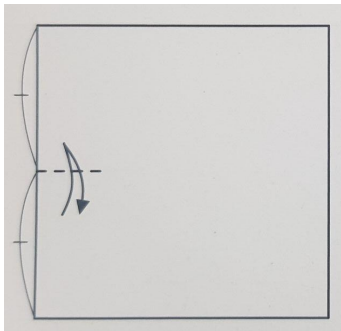
Make a pinch on just one side of the paper to mark the center point.

2
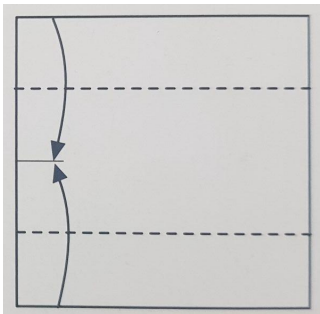
Fold both horizontal edges to the center.

3
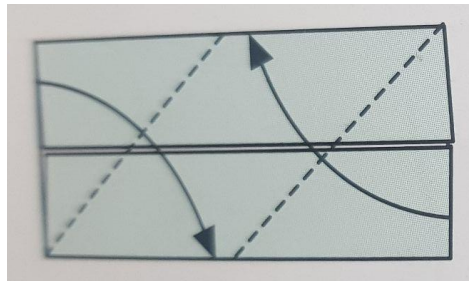
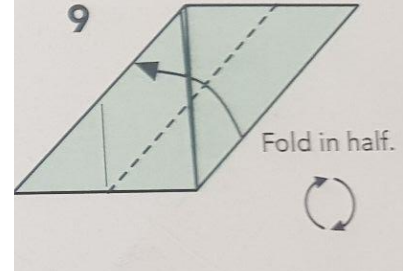Fold the corner flaps. Unfold the one on the left.
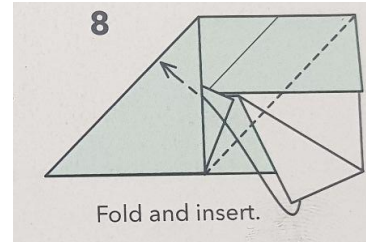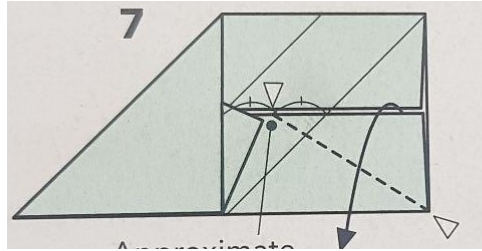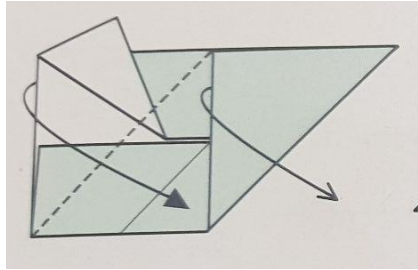
5 Approximate center point
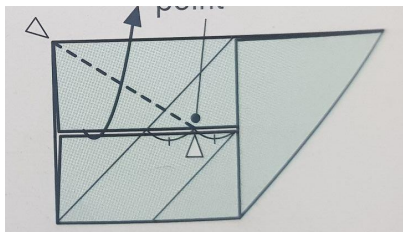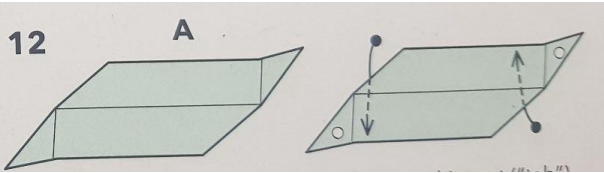

The center point is just a guide, so it's okay if it shifts.

4

Origami with repeated patterns

6

7

8

Fold and insert.

9

Fold in half.

11

10
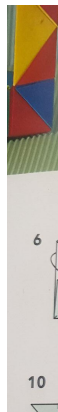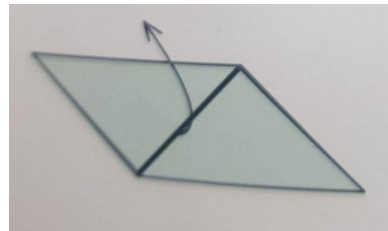
12 **A**
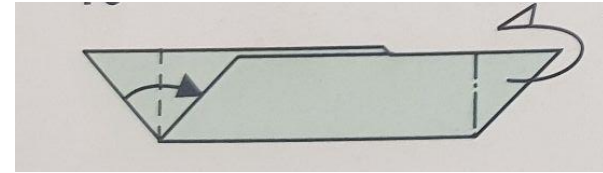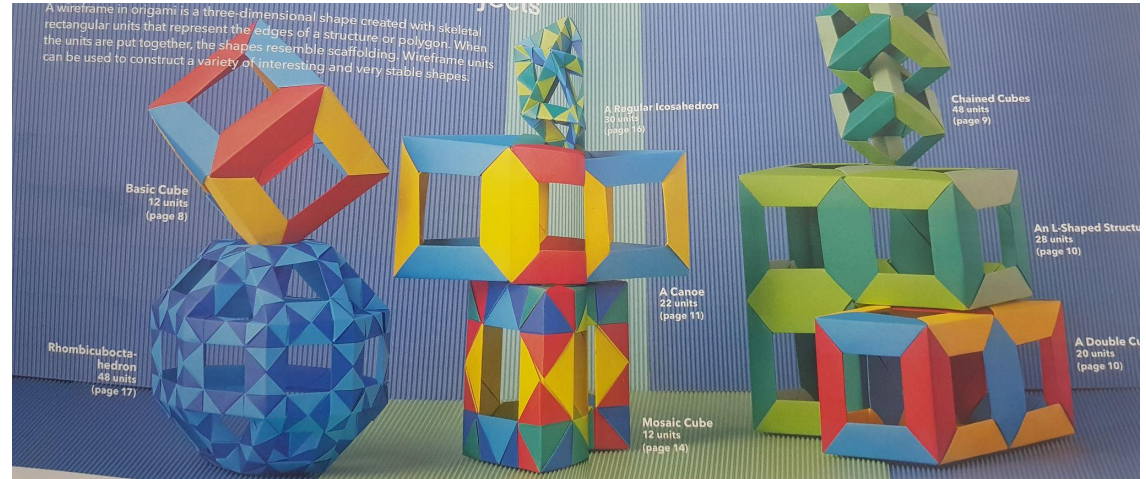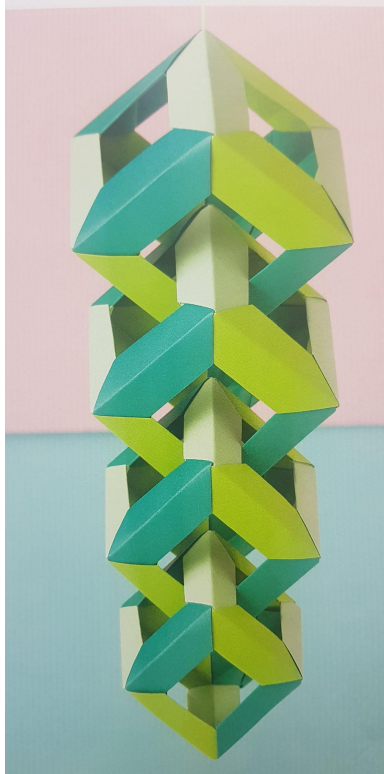

The finished unit
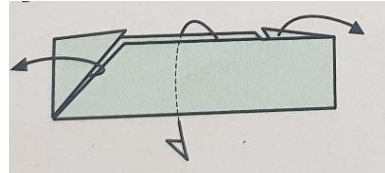
Make this fold firmly so that the units fit together tightly when assembled.

Origami with repeated patterns

A wireframe in origami is a three-dimensional shape created with skeletal rectangular units that represent the edges of a structure or polygon. When the units are put together, the shapes resemble scaffolding. Wireframe units can be used to construct a variety of interesting and very stable shapes.

A Regular Icosahedron
30 units
(page 16)

Chained Cubes
48 units
(page 9)

Basic Cube
12 units
(page 8)

An L-Shaped Structure
28 units
(page 10)

A Canoe
22 units
(page 11)

A Double Cube
20 units
(page 10)

Rhombicubocta-
hedron
48 units
(page 17)

Mosaic Cube
12 units
(page 14)

Source : Origami Polyhedra by Tomoko Fuse

So what was assessed?

1. Identifies the growing/decreasing patterns.
2. Folds papers (Origami) to make/form 3D shapes,
3. Describes 3D shapes by their characteristics; (e.g., a cuboid has twelve edges, eight corners, and six faces)
4. Identifies and determines the centre of regular shapes
5. Makes a three-dimensional object from two-dimensional representations of that object.
6. Describes 3D shapes (cylinder, cone, sphere) by their characteristics

So what was assessed?

7. Describes the idea of angles and shapes.
8. Finds the relationship between angles and the shape of a polygon and solid shapes.
9. Classifies angles into right angle, and below and above right angle, and represents the same by drawing and tracing.
10. Demonstrates the concept of symmetry by reflection.
11. Observes, identifies, and extends geometrical patterns based on symmetry
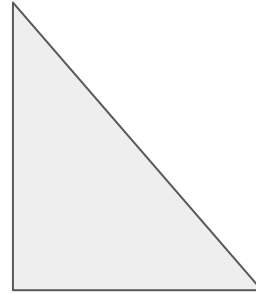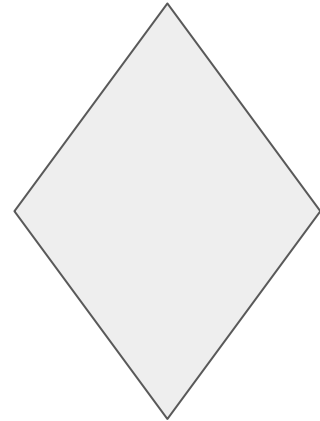
The Concept of Angles

Drawing the ANGLES is way easier than understanding the concept of shape and its relation with angle.
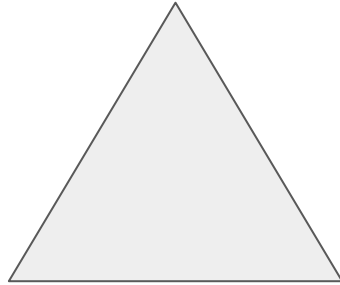
Acute Angled
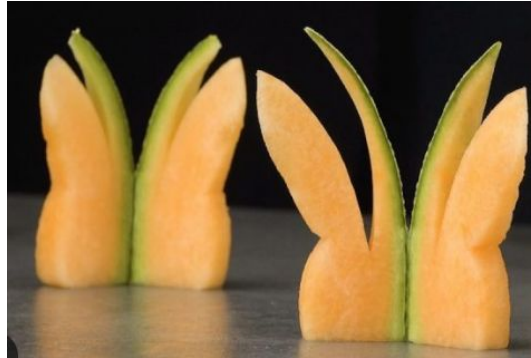(Equilateral triangle)

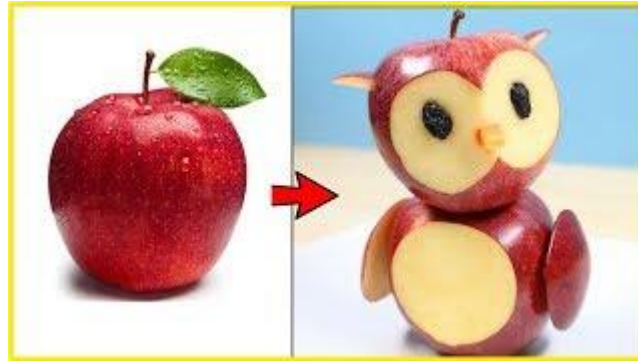Right angled
triangle

Diamond
Shape with
obtuse angles

Where else will changing the angles change the shapes drastically?

Fruit Carving!!

Cool Cucumber Cuts

Angles with OWL and apple

https://www.youtube.com/watch?v=oncIUB3F3VI&t=5s

What angle did you see?

Was this fun?

Thank You

Teachers Questionnaire Part 2