

# Creative learning workshops applying Sci-Stencils by Motley Games.

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**Abstract:** It is a fact that the Education System has gone through a complete paradigm shift. It has included many concepts which were not there initially. The difficulty level of the concepts has also increased with the advancement in the conceptual knowledge. As per the survey conducted by the game creator, some students feel bored drawing the science diagrams while some like to draw but the perfect technique of drawing a scientifically correct diagram is not known. Science diagrams need to be scientifically correct, clean and clear. The three Cs are very crucial and students must consider them while drawing during the practice as well as the examination. If the diagrams are properly practiced with a well developed and easy technique then scoring becomes much feasible. It is the ultimate motto of the Motley Games to provide the best suitable creativity for teaching-learning process.

Motley Games have come up with a unique way of learning and practicing science diagrams with the help of special stencils named as Sci-Stencils. Drawing the diagrams using the Sci-Stencils can be so much fun-filled activity. Along with the stencils, will be given a diagram already labelled and the instructions about using the aid.

**Hypothesis:** Sci-Stencils can be an effective tool for learning Science diagrams efficiently.

**Method to use the Sci-Stencils:**

- Make use of a well sharpen pencil for the diagram.  
First draw the outline of the diagram.
- Then cover the internal details.
- Remember, the lining with the pencil must be done in a smoother and lighter way. Avoid drawing in a rough manner as some of the parts of the stencil might be delicate and have the chances to get damaged.
- Once the drawing with a pencil is done, the figure can be coloured as per the sample picture provided or as per the student's wish. Remember, creativity is not bounded by any colour. [Note: For Plant Cell, Chloroplast needs to be green in colour, Also in V. S. Of Heart, the right side needs to be blue in colour and left side, red in colour to show the flow of deoxygenated and oxygenated blood respectively. Some technicalities needs to be followed thoroughly.
- Complete the figure by properly labelling it.
- Keep practicing it again and again in order to gain an expertization in the science diagrams.
- Such stencils are strictly prohibited in the examination. Use only for practicing purpose.
- Make creative notes with better understanding using Sci-Stencils.

### Practical Application:

This tool was practically applied to benefit 350 students at workshops conducted.

First workshop was conducted at Sheth G. H. High School, Borivali East. It included 100 Students from 9<sup>th</sup> grade.

The students were asked to draw diagrams without using the stencils.

Sr. No.	Diagrams	Without Sci-Stencil		With Sci-Stencil	
		No. of Students out of 100.	Max. Marks obtained out of 3.	No. of Students out of 100.	Max. Marks obtained out of 3.
1.	Plant Cell	48	2.5	77	3.0
2.	Animal Cell	57	2.0	84	3.0
3.	C. S. of Kidney	38	1.5	69	2.5
4.	V. S. of Heart	23	1.5	56	2.0
5.	Double Fertilisation in plants	33	1.5	79	2.5
	<u>Average</u>	<u>39.8</u>	<u>1.8</u>	<u>73</u>	<u>2.6</u>

**Rationale:** On an average, 60 Students scored below 1.8 total marks. It was a matter of concern that around 60% students had difficulties in drawing and understanding Biology diagrams.



Photograph of the workshop

Second workshop was conducted at Pratapgarh, Uttar Pradesh. It included 250 Students from various High Schools. Same procedure was repeated to collect an appropriate data.

Sr. No.	Diagrams	Without Sci-Stencil		With Sci-Stencil	
		No. of Students out of 250.	Max. Marks obtained out of 3.	No. of Students out of 250.	Max. Marks obtained out of 3.
1.	Plant Cell	67	1.5	218	3.00
2.	Animal Cell	89	2.0	226	3.00
3.	C. S. of Kidney	176	1.5	199	2.28
4.	V. S. of Heart	189	1.0	197	2.49
5.	Double Fertilisation in plants	110	1.0	189	2.50
	<b>Average</b>	<b>126.2</b>	<b>1.4</b>	<b>205.8</b>	<b>2.654</b>

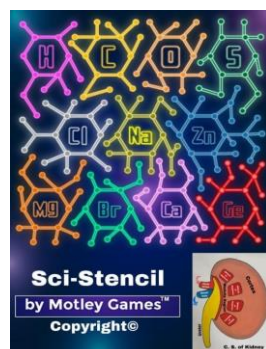
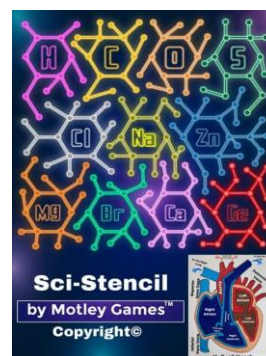
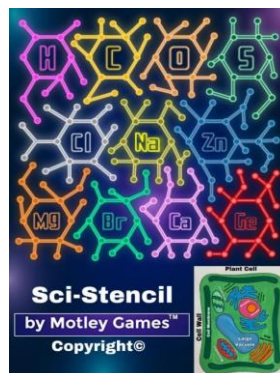
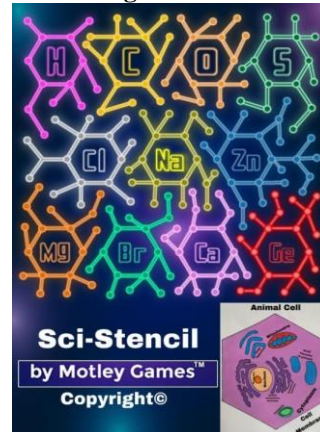
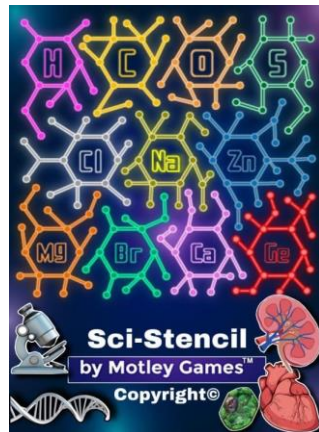
Rationale: On an average, 124 Students scored below 1.4 total marks. Around 50% students had difficulties in drawing and understanding Biology diagrams. According to the rest 50% students, they usually skipped Biology diagrams as they find them difficult to sketch.



Photographs of the workshop:

**Benefits of the Aid:**

- ☐ Enhances creativity.
- ☐ Better understanding of the scientific diagram.
- ☐ Regular practice of drawing the diagram using SciStencils can help you manage the time.
- ☐ Helps improve the artistic skills.
- ☐ Better conceptual understanding.
- ☐ Uniquely designed stencils of diagrams help all the types of students, Eg.: slow learners, learning disabled child, children with Ataxia, etc.
- ☐ Helps gain interest in Science.
- ☐ Improves the motor skills by attaining perfection.
- ☐ Increases confidence of drawing diagrams in the examination as constant practice upgrades your skills.

**Photographs of the Sci-Stencil logo:**

Diagrams in the form of Stencils:

by Motley Games™



**References:**

1. Activity Based Learning and Innovative Teaching Aids, Creative Crow Publishers.
2. E-balharati, Maharashtra Board Secondary Section Textbooks.
3. Techniques of Teaching, S. K. Kochhar, Sterling Publishers Pvt. Ltd.