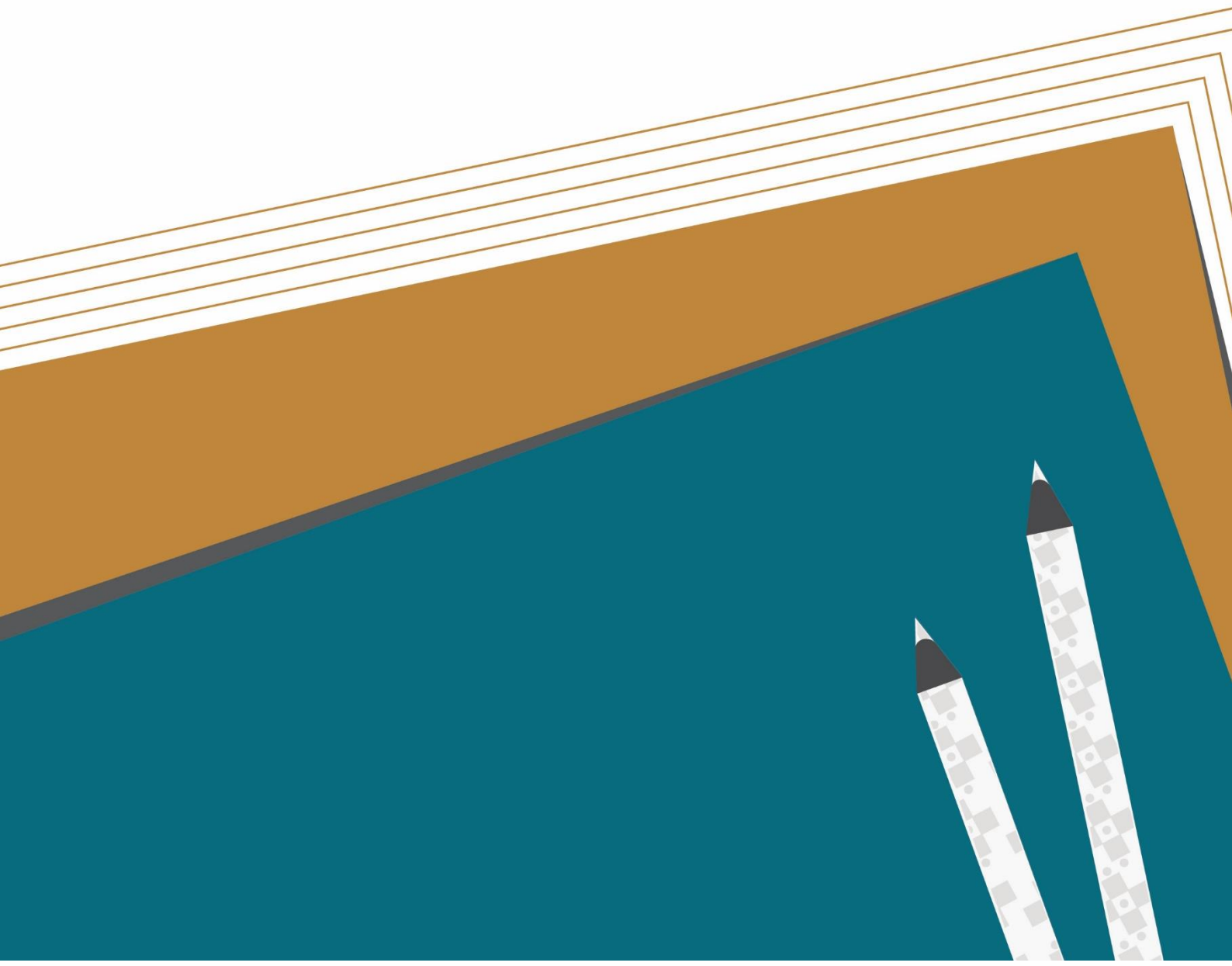


A Guide to Writing Learning Outcomes

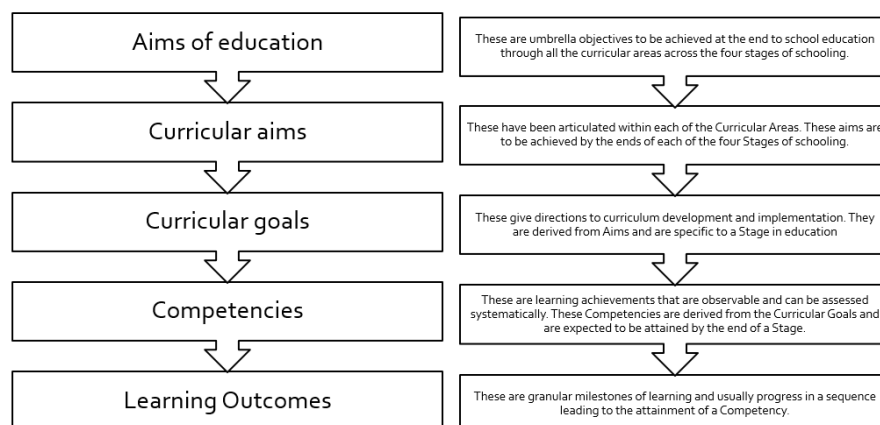


A Guide to Writing Learning Outcomesⁱ

Meaning of Learning Outcomes

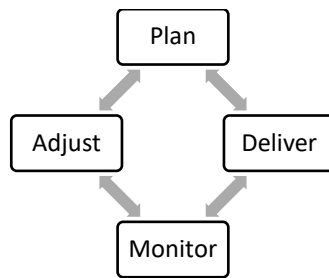
Competencies are attained over a period of time. Therefore, interim markers of learning achievements are needed so that Teachers can observe and track learning and respond to the needs of learners continually. These interim markers are called Learning Outcomes. Thus, Learning Outcomes are granular milestones of learning and usually progress in a sequence leading to the attainment of a Competency. These are statements summarising the knowledge, capacities, dispositions, and values that all children must possess and demonstrate upon the completion of a learning experience or sequence of learning experiences (NCF-SE, 2022).

Curriculum developers and Teachers should have the autonomy to define Learning Outcomes as appropriate to their classroom contexts, while maintaining clear connection to the Competencies. These Learning Outcomes arise from the process of flow-down. They guide the trajectory of educational efforts towards the attainment of Competencies, which in turn accumulate to Curricular Goals. When the achievement of the Learning Outcomes, Competencies, and Curricular Goals are all taken together, they achieve the relevant Aims of Education (NCF-SE, 2022).



Need for Learning Outcomes for Classroom Teachers

Learning Outcomes allow teachers to **plan** their content, pedagogical approaches, and assessments with specific competencies in mind. They guide teachers in **delivering** these teaching plans that includes pedagogical and assessment strategies, **monitoring** students' progress, and making necessary **adjustments** based on students' achievements of the desired outcomes.



1. **PLAN & DELIVER:** Learning Outcomes provide clear, specific goals that both teachers and students can aim for. They act as a roadmap, outlining what students are expected to know or do, by the end of a lesson, unit, or course. For teachers, this means that pedagogical strategies should be tailored to meet these outcomes, ensuring that all activities, teaching learning materials, and assessments are aligned with the desired outcomes. For students, knowing the expected outcomes helps them understand what they need to focus on, making their learning experience more purposeful and targeted.
2. **MONITOR:** Learning Outcomes allow both students and teachers to gauge progress. Teachers can assess whether students are meeting the expected outcomes through formative and summative assessments. This ongoing assessment helps in identifying areas where students might need additional support or where instructional strategies might need adjustment. For students, understanding the Learning Outcomes helps them self-assess and reflect on their progress towards meeting the outcomes, fostering self-regulation and motivation.
3. **ADJUST:** Learning Outcomes provide direction by clarifying the learning goals (Which direction am I going towards?), assessing the current status of student progress (Where am I now with respect to learning outcome?), and planning future actions (What strategies can help me move towards the learning goals?). This structured approach allows teachers to make informed decisions about instructional strategies, thereby supporting continuous improvement in teaching and learning. This approach also facilitates effective feedback that can be provided to students about their progress toward the outcomes.

Principles of Writing Learning Outcomes

1. Learning Outcomes should be written in **clear and understandable language** that is accessible and meaningful for both students and teachers. This ensures that all stakeholders comprehend the expectations and can effectively work towards achieving them.
2. Learning Outcomes should reflect knowledge, capacities, dispositions, and values in an **observable and assessable** manner.
3. Learning Outcomes should be **developmentally appropriate** for each grade level, showing clear linkages and coherence across different stages of education. This facilitates the assessment of current learner progress and aids in planning the next steps to advance towards learning goals, ensuring a clear progression and continuity in learning.

4. Learning Outcomes should function as ***flexible guidelines*** rather than strict, grade-specific boundaries. They provide a framework for teachers to plan their content, pedagogy, and assessments in a way that supports the achievement of specific competencies without being restricted to rigid grade levels.
5. Learning Outcomes should be defined with ***consideration*** for the socio-cultural context, available materials and resources, and classroom contingencies. This contextual relevance ensures that the outcomes are applicable and practical within the specific educational setting.
6. Learning Outcomes should adequately and holistically define the ***scope of competencies***. The attainment of Learning Outcomes should contribute to achieving the overall competencies.
7. Learning Outcomes should aim for ***clarity and breadth rather than specificity*** that mimics a question. They are statements of expected achievements, not the means by which those achievements will be assessed.

Sample Learning Outcomes

Foundational Stage

Competencies

C-3.3: Shows precision and control in working with their hands and fingers

C-8.2: Identifies and extends simple patterns in their surroundings, shapes, and numbers

C-8.7: Recognises multiplication as repeated addition and division as equal sharing

C-12.1: Explores and plays with a variety of materials and tools to create two-dimensional and three-dimensional artworks in varying sizes.

Learning outcomes

Remember	• Recognizes and repeats the patterns in pairs – Objects, pictures, shapes (leaf, flower, leaf, flower, in A B A B A B A B A B A B A pattern). • Recognizes and repeats the patterns of sounds (da-ma-ga, da-ma-ga, etc.). • Recognizes and repeats the patterns of the movements (hop-stand, hop-stand). • Recognizes and repeats patterns of 3 different bodily movements clearly.
Understand	• Recognizes the unit of a repeating pattern, and extends the patterns of 3 to 4 objects/ pictures/ shapes/colours repetitions ABC (pen-book-pencil; pen-book-pencil in ABC ABC ABC pattern, or red-yellow-blue/red-yellow-blue... • Recognizes, repeats and extends the pattern of action/sounds/ bodily movement. • Explains or describes a pattern (identifies the unit of a pattern, what the unit consists of and how pattern is created through repeating the unit). • Distinguishes between a complete and an incomplete pattern with explanation.

Apply	- Creates simple patterns using blocks, stencils, found objects and natural materials. - Creates patterns by combining and arranging materials in a variety of shapes, forms, objects, textures, and colours. - Describes the rule of patterns and applies this on abstract patterns such as number, symbol, and analogic thinking patterns. (e.g., using colours in pattern while drawing and painting. Using symbols or dots of same quantity into different patterns.
Analyze	- Compares and contrasts between 2 kinds of patterns and explains how they are different from each other. - Recognizes number patterns related to given repeating patterns.
Analyse/ Evaluate	Uses repeated adding to solve simple multiplication problems up to 99
Create	- Creates a collage of a mandala using different patterns of shapes and colours (there can be a given set of shapes/ colours for the child to play with). - Paints a curtain/ handkerchief/ pillow cover with patterns of finger print/ vegetable print (colour/ shape pattern). - Creates a short dance piece using patterns of actions/ bodily movements.

Language- English

Curricular Goal CG-3 Develops the capacity for effective communication using language skills for questioning, describing, analysing, and responding. (R2)

Competency C-3.1 Writes different kinds of letters and essays using appropriate styles and registers for different audiences and purposes. (R2)

Learning outcomes

Remember	- Identifies the key components (e.g., salutation, closing) of different types of letters (formal, informal). - Recalls standard formats and structures for writing essays, including introduction, body, and conclusion. - Recognizes different types of essays (narrative, descriptive, persuasive, expository) and their purposes.
Understand	- Describes the differences between formal and informal writing styles. - Interprets the audience's needs and adjusts the writing style accordingly. - Summarizes the main points that should be covered in a letter or a persuasive essay. - Explains the purpose of using different tones and registers in letters and essays depending on the audience.
Apply	Uses appropriate vocabulary and tone when writing a formal letter to a school principal and an informal letter to a friend.

	- Writes using a wide range of vocabulary on topics related to self and larger societal issues/concerns independently e.g., bank forms, cheques, AADHAAR application, OMR worksheets, travelogues, notices, formal letters, etc. - Writes using appropriate vocabulary on topics related to self and surroundings in independent writing exercises e.g., messages, informal letters, applications (teacher/principal), etc.
Analyse	- Compares the structure and style of different types of letters (e.g., a cover letter versus a personal letter) to identify similarities and differences. - Breaks down an essay into its key components, explaining how each part contributes to the overall argument or narrative. - Examines the effectiveness of word choice and sentence structure in conveying the intended message in a letter. - Analyses how varying the tone and register can change the impact of the message on the reader.
Evaluate	- Evaluates an essay's argument, assessing the strength of the evidence and the persuasiveness of the reasoning. - Judges the appropriateness of the language and style used in a letter or essay for the intended audience. - Assesses the overall coherence and unity of an essay, determining whether the ideas are logically organized and well-supported.
Create	- Composes original letters tailored to different audiences and purposes, such as a formal letter to a government official and a thank-you letter to a friend or family member. - Writes a persuasive essay on a current issue to convince the reader. - Develops a new format or structure for a specific type of letter or essay that meets the needs of a unique audience or purpose.

Science

Curricular Goal CG-3: Explores the structure and function of the living world at the cellular level.

Competency C-3.2: Analyses similarities and differences in the life processes involved in nutrition (photosynthesis in plants; absorption of nutrients in fungi; digestion in animals), transport (transport of water in plants; circulation in animals), exchange of materials (respiration and excretion), and reproduction.

Learning Outcomes (Class X – Life processes)

- | | |
|-----------------|--|
| Remember | <ul style="list-style-type: none"> Defines a “Living Being” and the characteristics living organisms share. Identifies the pathway of blood flow (oxygenated and deoxygenated) between heart and body in human circulatory system. |
|-----------------|--|

Understand	• Relates the breathing rate of an organism with amount of oxygen available in its ambient atmosphere. • Relates to the features of digestive organs based on type of food intake by organisms. (herbivores, carnivore and omnivores). • Describes the transport and exchange of oxygen in mammals and amphibians. • Explains the utilisation of energy liberated through cellular respiration.
Apply	• Applies learning of life processes in hypothetical situations predicting consequences/ implications (if bile juice doesn't get secreted by liver, if the stomata clogs etc, behaviour of warm- and cold-blooded animals). • Applies the principles of photosynthesis to figure out possibilities of plant growth and yield in varying conditions. (light intensity, duration, temperature etc.)
Analyze	• Interprets data/ scenarios/situations related to rate of respiration, transpiration, haemoglobin, blood pressure levels in reference to factors affecting them. • Analyses different types of circulatory systems (open vs close) and its effect on the efficiency of respiration and energy production in reference to the environmental needs.
Evaluate	• Critique the effectiveness of respiratory/excretory/circulatory system present in unicellular and multicellular organisms highlighting their advantages and limitations. • Assess the suitability of reproductive strategies (sexual and asexual) for the sustenance of different organisms in respective habitats.
Create	• Design investigations to validate gaseous exchange taking place in plants/animals during photosynthesis/ respiration; production of starch during photosynthesis etc. • Develop simple investigations to compare the respiratory rates of mammals and amphibians in terms of aligning materials/resources, method, safety precautions, managing variables and recording observations. • Presents the effects of commonly found diseases in neighbourhood and their prevention using slides, videos, data, graphs, posters, newspaper/magazine cuttings, role play etc. • Constructs low cost-no cost working models simulating/mimicking the principles of circulatory/respiratory/excretory system or mechanism of dialysis in humans.

Curricular Goal CG-4: Develops an understanding of the inter-relationship between human beings and their physical environment and how that influences the livelihoods, culture, and the biodiversity of the region.

Competency C-4.5: Critically evaluates the impact of human interventions on the environment, including climate change, pollution, shortages of natural resources (particularly water), and loss of biodiversity; identifies practices that have led to these environmental crises and the measures that must be taken to reverse them.

Learning outcomes

Remember	- Identifies the aspects and major incidences of environmental hazard in India and around the world - Locates places of major environmental hazard on the map
Understand	- Discusses the factors that lead to environmental crisis in today's world. - Describe the impact of human intervention on the environment and ecosystem. - Discusses the areas which are ecologically sensitive/ prone to environmental hazard and their reasons through maps. - Traces the changes in the water resources from a given time frame (for e.g., lakes in Chennai and Bangalore) - Describes strategies that industries and governments have implemented to increase the sustainability of India's natural resources
Apply	- Applies spatial skills like graphs to visualize statistical data about the type and quantity of waste or emissions produced by a given community or industry - Applies the concept of reuse, recycle and reduce in real life situation - Applies the satellite images to gain an understanding of the different types of information that can be gathered by satellites (such as land use and land cover, extent of damage after natural disaster etc.) Satellite imagery can also help students develop a sense of spatial orientation. - Applies the methods of inquiry to arrive at conclusion and making informed decision) (gathering sources (e.g., data, maps, graphs literature) organising sources data, corroborating sources and arriving at a conclusion, communicating to the audience)
Analyze	- Interprets spatial and metrological data, maps and satellite images related to environment to make informed decisions and choices - Analyses the influence of governments, advocacy groups, and industries on the sustainable development and use of selected Indian resources - Analyses the roles and responsibilities of individuals in promoting the sustainable use of resources (e.g., managing one's own ecological footprint, making responsible consumer choices, recycling, advocating sustainable resource-use policies and practices)

	Analyses from a geographic perspective, issues relating to the development, extraction, and management of various natural resources found in India (for e.g., potential political controversies relating to ownership of the resource, building of dams, mining, development of oil and gas pipelines and related economic pressures and social and environmental concerns)
Evaluate	- Assess the renewability and non-renewability of various natural resources in India (e.g., “How does time affect whether a natural resource is renewable or not?”) - Examines the feasibility of using selected renewable and alternative energy sources (e.g., solar, wind, tidal, hydro) to augment or replace existing power sources in various parts of India - Justifies the judicious use and sensitivity towards the judicious use of natural resources (by individuals, societies, and nations) and suggests measures for their conservation - Voices opinion and builds arguments by providing and substantiating with evidence from relevant and reliable sources (research, journals, articles, data, maps etc)
Create	- Create the profile of a place or a region using various sources of spatial data and map, depicting their resources and environmental vulnerability using appropriate symbols - Develops plans to mitigate and adept to various natural hazards and disasters, enrich the local and regional natural resource base and their sustainable uses - Generates awareness on environmental issues through poster presentations, <i>nukkad natak</i> (street plays, writing proposals etc)

Mathematics

Curricular Goal: CG 1: Understands numbers and sets of numbers (whole numbers, fractions, integers, rational numbers, and real numbers), looks for patterns, and appreciates relationships between numbers	
Competency:	
- Explores and understands sets of numbers, such as whole numbers, fractions, integers, rational numbers, and real numbers, and their properties, and visualises them on the number line. - Demonstrates creativity in discovering one’s own solutions to puzzles and other problems and appreciates the work of others in finding their own, possibly different, solutions.	
Learning outcomes (VII-VIII: Rational Numbers)	
Remember	- Expresses the rational numbers in standard form. - Identifies equivalent rational numbers.
Understand	- Differentiates a rational number from a fraction. - Visualizes the existence of infinite rational numbers between any two given numbers. - Represents a rational number on a number line.
Apply	Applies the concept of mean to find rational numbers between any two given numbers.

	Solves problems involving operations on rational numbers.
Analyze	- Compares two expressions involving operations on rational numbers. - Explores the decimal form of rational numbers to recognise non-terminating and recurring decimals.
Evaluate	- Compares rational numbers using different methods (using decimal forms or equivalent forms) and justifies their preference. - Generalises the pattern in the decimal representation of rational numbers.
Create	Designs a game/puzzle involving operations on rational numbers.

References

- NCERT. (2022). National Curriculum Framework. New Delhi: NCERT.
- Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory into practice*, 41(4), 212-218.

ⁱ This article is contributed by members of School of Continuing Education at Azim Premji University, Bangalore- Ahana Dasgupta, Anusha T, Nandan Kumar, Pooja Arya, Reshma Krishnan, Ronita Sharma, Shilpi Banerjee, Vikas Chandra Roy
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