Lesson Plan: Reproduction: How Life Continues (CBSE Class IX 2026-27)

Teacher:

Class: IX

Subject: Science (Subject Code - 086)

Theme/Unit: Structure and Function of the Living World

Chapter: 11 – Reproduction: How Life Continues

Estimated Number of Periods: 13

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1. Gist of the Lesson & Curricular Goals

- **Core Syllabus:** Asexual reproduction (budding, spore formation, vegetative propagation); Sexual reproduction in flowering plants (flower parts, pollination, fertilisation, seed dispersal); Sexual reproduction in animals and humans (male/female reproductive systems, gamete formation, fertilisation, menstrual cycle, pregnancy); Reproductive health and family planning.

- **Educational Aim:** To understand how living organisms reproduce to ensure species continuity, distinguish between asexual and sexual reproduction modes, and develop awareness regarding reproductive health, hygiene, and ethical issues in society.

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2. Teaching-Learning Plan & Pedagogy

Key Concepts	Competencies (C) & Learning Outcomes	Teaching-Learning Activities (Pedagogy)	Assessment Strategies
Asexual Reproduction & Vegetative Propagation	**C-3.2:** Compares asexual and sexual reproduction. • *Outcome:* Students will classify methods	• **Scientific Inquiry (Activity 11.2 & 11.3):** Grow yeast in sugar solution and observe budding under a microscope. Grow mould on moist	• **[Demonstrate Knowledge - VSA]:** *Define* vegetative propagation. • **[Application - SA]:** *Illustrate*

	like budding, spore formation, and cutting.	bread to observe spore formation. • **Hands-On (Activity 11.1):** Practice vegetative propagation by taking stem cuttings and observing root growth.	budding in Hydra with a sequence of diagrams.
Sexual Reproduction in Plants	**C-3.2:** Describes reproductive organs in plants. • *Outcome:* Students will identify floral parts and explain pollination and fertilisation.	• **Dissection (Activity 11.5):** Dissect a flower (e.g., Hibiscus) to identify sepals, petals, stamen (anther, filament), and pistil (stigma, style, ovary). • **Experimental setup (Activity 11.6):** Bag flowers with and without stamens to prove pollen is required for fruit formation.	• **[Demonstrate Knowledge - Objective]:** *Identify* the part of the flower that develops into a fruit. • **[Analyze & Evaluate - Case-Based]:** *Examine* data (Table 11.3) comparing the efficiency of wind vs. insect pollination strategies.
Sexual Reproduction in Animals (Meiosis & Variation)	**C-3.3:** Explains how variations are introduced. • *Outcome:* Students will model the segregation of	• **Simulation (Activity 11.4):** Use colored beads representing chromosomes to simulate how meiosis reduces chromosome	• **[Demonstrate Knowledge - VSA]:** *State* why meiosis is necessary for sexual reproduction.

	traits during gamete formation via meiosis.	number to half and creates unique genetic combinations (variation). • **Compare & Contrast:** Differentiate external fertilisation (frogs/fish) and internal fertilisation (reptiles/birds/mammals).	• **[Formulate & Analyze - SA]:** *Evaluate* why animals with external fertilisation produce significantly more eggs than those with internal fertilisation.
Human Reproductive System & Pregnancy	**C-3.2:** Illustrates the structure of human reproductive systems. • *Outcome:* Students will trace the path of sperm and eggs, and explain the menstrual cycle.	• **Visual Mapping:** Use diagrams to trace sperm from testes $\rightarrow$ vas deferens $\rightarrow$ urethra, and eggs from ovary $\rightarrow$ fallopian tube $\rightarrow$ uterus. • **Discussion:** Discuss ovulation, fertilisation, zygote implantation, and the shedding of the uterine lining (menstruation) if no fertilisation occurs.	• **[Demonstrate Knowledge - SA]:** *List* the differences between male (sperm) and female (egg) gametes regarding size and motility. • **[Application - LA]:** *Explain* the physiological events of the 28-day menstrual cycle.

Reproductive Health & Family Planning	**C-5.2:** Examines a case study related to the use of Science in human life. • *Outcome:* Students will evaluate contraceptive methods and STI prevention.	• **Contextual Learning:** Discuss the importance of emotional maturity, safe sex practices, and the prevention of STIs (like HIV/AIDS) using barrier methods (condoms). • **Societal Link:** Discuss the ethical issues surrounding sex-selective abortion and the role of ASHA workers in maternal health.	• **[Demonstrate Knowledge - VSA]:** *Name* one mechanical barrier method and one surgical method of contraception. • **[Analyze & Evaluate - Assertion-Reasoning]:** *Evaluate* the dual role of condoms in preventing pregnancy and STIs.

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3. Assessment Structure & Weightage

Assessments are strictly modeled on the CBSE 2026-27 Theory Question Paper Design (80 marks):

- **Demonstrate Knowledge and Understanding (50%):** Assessed via questions asking students to *state, name, list, identify, define, suggest, describe, outline, and summarize* (e.g., naming reproductive organs, defining ovulation).

- **Application of Knowledge/Concepts (30%):** Assessed via questions asking students to *calculate, illustrate, show, adapt, explain, and distinguish* (e.g., distinguishing between cross and self-pollination, explaining IVF).

- **Formulate, Analyze, Evaluate and Create (20%):** Assessed via questions asking students to *interpret, analyze, compare, contrast, examine, evaluate, discuss, and construct* (e.g., analyzing agricultural data on bee vs. natural pollination, examining the ethical impacts of prenatal sex determination).

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4. Digital Integration & Portfolio Enrichment (Internal Assessment - 20

Marks)

- **Subject Enrichment (Practical Work - 5 Marks):** Evaluated strictly on the execution of floral dissection (Activity 11.5) and observing budding/spores under a microscope (Activity 11.2/11.3). Students will be assessed on their careful handling of biological specimens, accuracy in identifying the stamen vs. pistil, and the neatness of their microscopic drawings in the lab record.

- **Digital Integration Strategy:** To reinforce complex physiological processes ahead of Periodic Assessments, utilize digital 3D animations (such as those via the DIKSHA portal). Students can digitally trace the journey of a pollen tube growing through the style into the ovary, or view the microscopic process of a sperm fertilizing an egg.
- **Portfolio Task (5 Marks):** Students will *investigate* the societal applications of asexual reproduction in agriculture. They will interview a local gardener, farmer, or nursery worker about techniques like cutting, grafting, and tissue culture used to grow high-yield or disease-resistant crops. They will prepare a brief write-up summarizing these artificial vegetative propagation methods and securely add this to their academic portfolio.