

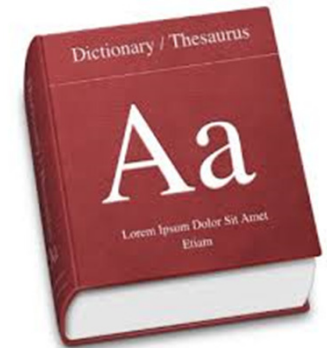
Towards driving Quality in Education

# **Next Generation Interactive e-book**

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# Going Beyond existing Learning Material

- Book
  - Text and picture and some questions at end of each chapter
    - Works well for highly motivated students
- Video Lectures
  - Lectures on a subject recorded using video: for example NPTEL
    - No interaction
    - Typical length of videos around 40 minutes to an hour
      - beyond attention span of most students (only for highly motivated)
- e-content
  - Web based reading material with some animations and audio / video
    - Limited interaction available



# Nextgen Interactive Digital Book

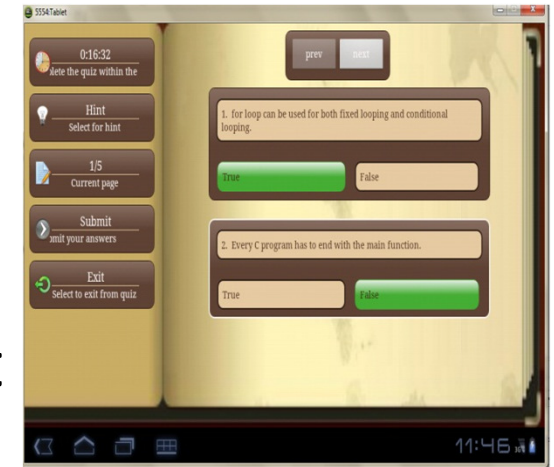
- A e-book on a tablet
  - Like existing books, divided into chapters and sections
  - But each section of three to four pages have
    - Text and graphics / pictures / tables
    - But also with
      - Embedded video lecture clip by a teacher (5 to 8 minutes)
      - Third party videos relevant to the topic
      - Relevant Animation
      - PPT summarizing main points
      - Quiz modules (objective - multiple choices, true/false, fill in the blanks, match, drag& drop )
      - Worksheets to draw, write, scribble and for taking notes
      - Dictionary and reference
      - Translation Module for single word as well as sentence translations (crowd-sourcing and translation technology)
      - A Forum for students to discuss and post doubts



# On top of it

- book captures every stroke of a student
  - and stores in a database
  - for analytics
    - To provide student / teacher / parent feedback
      - How long did the student spend on each section
      - What all did she do?
      - How many questions did she answer right in the first instant
      - How many times did she revise

Benchmark the activity / performance of the student with that of her peers



**Introduction**

Proteins are among the fundamental molecules of biology. They are common to all life present on Earth today, and are responsible for most of the complex functions that make life possible. They are also the major structural constituent of living beings. According to the Central Dogma of Molecular Biology (proposed by Francis Crick in 1958), information is transferred from DNA to RNA to proteins. DNA functions as a storage medium for the information necessary to synthesize proteins, and RNA is responsible for (among other things) the translation of this information into protein molecules, as part of the ribosome.

Virtually all the complex chemical functions of the living cell are performed by protein-based catalysts called enzymes. Specifically, enzymes either make or break chemical bonds. Protein enzymes should not be confused with RNA-based enzymes (also called ribozymes), a group of macromolecules that perform functions similar to protein enzymes. Further, most of the scaffolding that holds cells and organelles together is made of proteins. In addition to their catalytic functions, proteins can transmit and commute signals from the extracellular environment, duplicate genetic information, assist in transforming the energy in light and chemicals with astonishing

Proteins are a primary constituent of living things and one of the chief classes of molecules studied in biochemistry. Proteins provide most of the molecular machinery of cells. Many are enzymes or subunits of enzymes. Other proteins play structural or mechanical roles, such as those that form the struts and joints of the cytoskeleton. Each protein is linear polymers built of amino acid. Proteins are also nutrient sources for organisms that do not produce their own energy from sunlight and/or are unable to fix nitrogen. Proteins can interact with one another and with other molecules to form complexes.

Take Quiz 1

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# To Sum Up

- Tablets and mobile phone along with wireless connectivity (wifi/3g/4g) is transforming lives
  - Gives us an opportunity to bring in quality in education
  - By making reading and learning
    - Interactive
    - Fun
    - A social-learning exercise