Student-Directed Learning Aids (SDLAs) in Biochemistry

- Facilitate understanding of abstract concepts in Biochemistry.
- Reinforcement of lecture materials.
- Emphasize integrative nature of biochemistry.
- Promote learning interests in biochemistry.

SDLA – BICH121 Introduction To Biochemistry

Structure of Biomolecules

Proteins

Introduction

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Self Test

SDLA – BICH121 Introduction To Biochemistry

Structure of Biomolecules

Carbohydrates

Introduction

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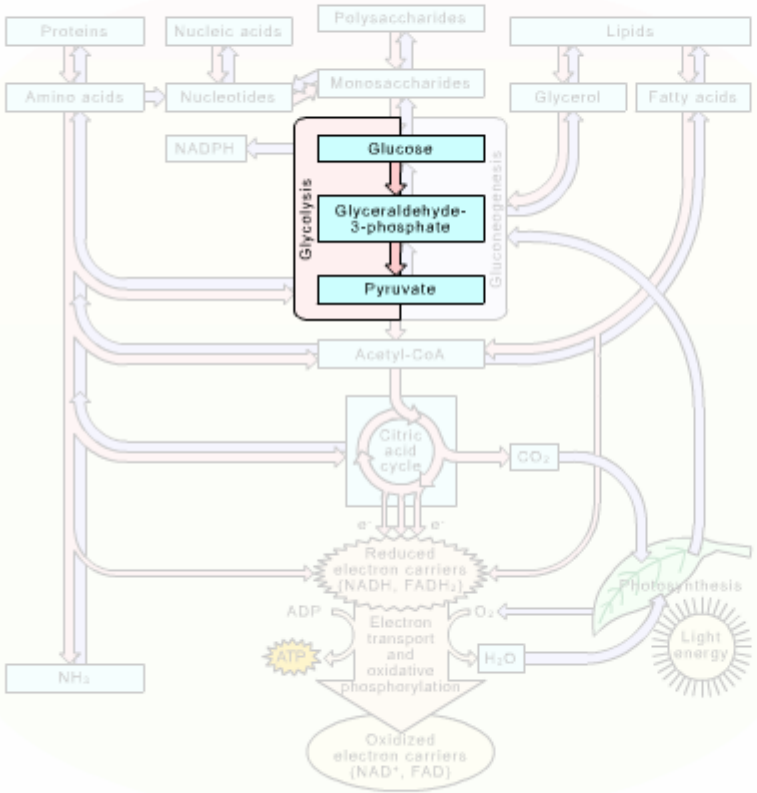
Self Test

SDLA – BICH122 Intermediary Metabolism

Carbohydrate Metabolism

Glycolysis

Introduction | Overview | Reaction Details | Summary



Glycolysis is a central metabolic pathway involving metabolism of the sugar **glucose**. Glucose is usually derived from the energy storage polysaccharides (glycogen) or dietary carbohydrates. Reactions of glycolysis occur solely in the **cytosol** of the cells.

Self Quiz

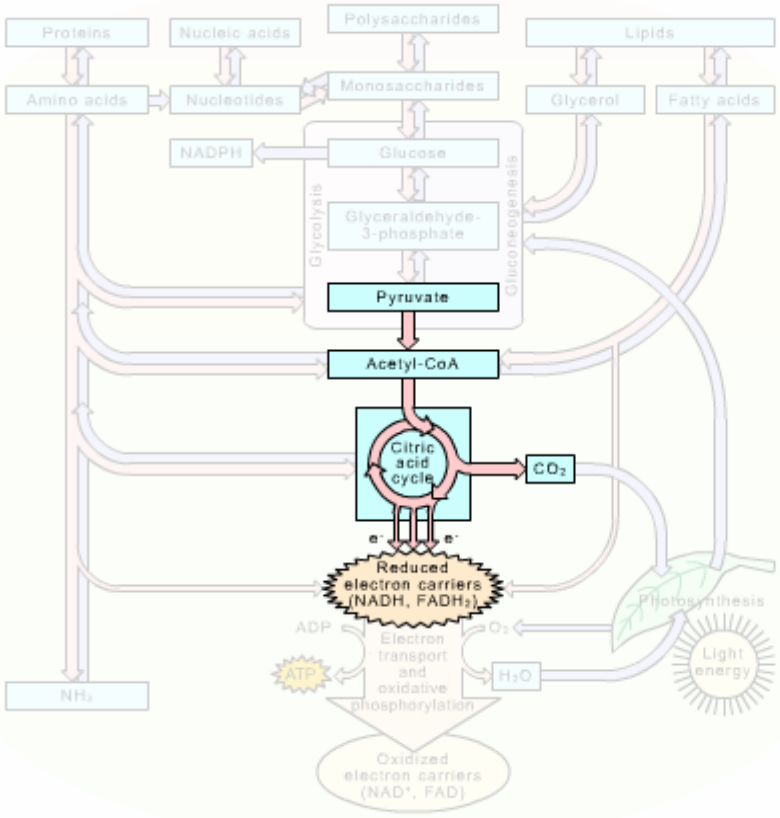
SDLA – BICH122 Intermediary Metabolism

Carbohydrate Metabolism

Oxidative Decarboxylation and Citric Acid Cycle

?

Introduction | Overview | Reaction Details of Oxidative Decarboxylation | Reaction Details of Citric Acid Cycle | Summary



Relatively little potential energy stored in the glucose molecule is released by glycolysis. Far more energy is generated in the subsequent oxidative reactions, namely,

- **Oxidative decarboxylation**
- **Oxidation of the acetyl-CoA in Citric acid cycle**

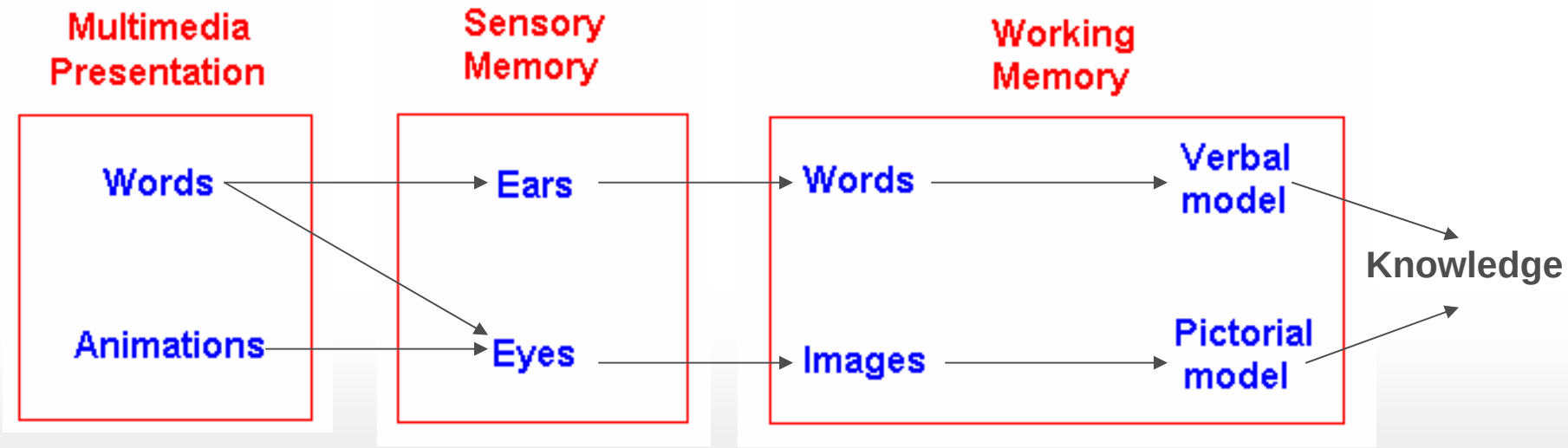
The reactions occur within the **matrix of mitochondria**.

Self Quiz

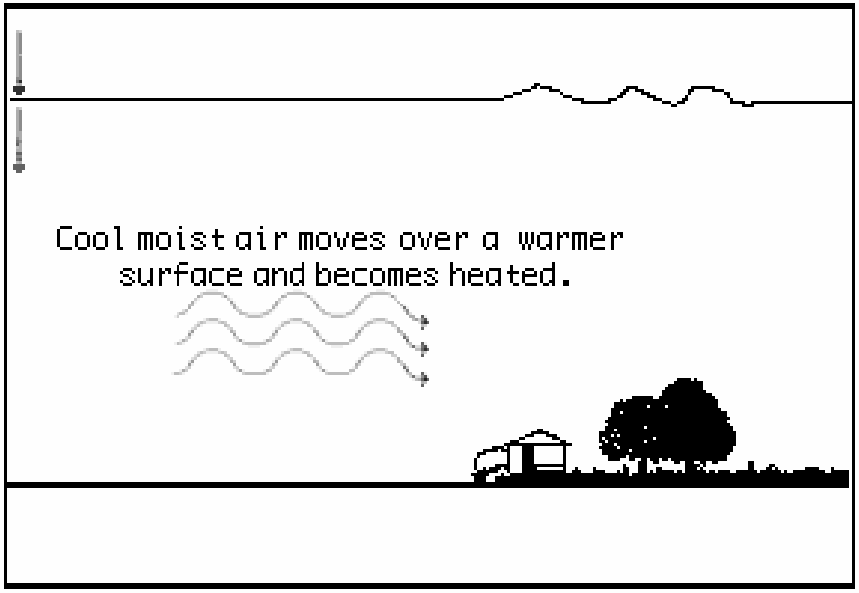
Audio Enhancement in Student-Directed Learning Aids (SDLAs) in Biochemistry

- To provide correct pronunciation of scientific terms.
- To prevent overloading of students' visual channel.
- To offer a choice of audio or visual transfer of information.

The Cognitive Theory of Multimedia Learning



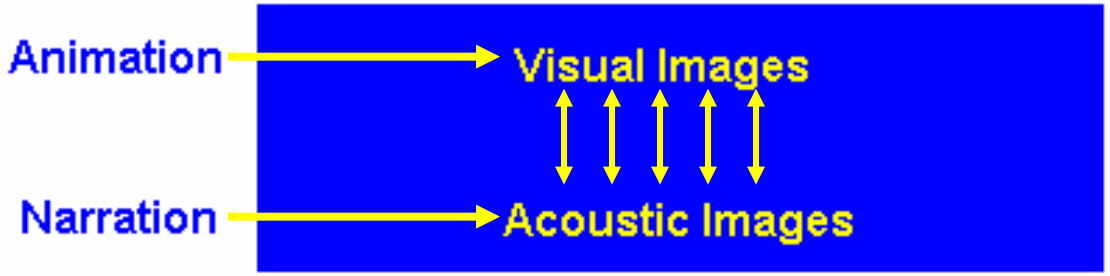
Demo: The Cognitive Theory of Multimedia Learning

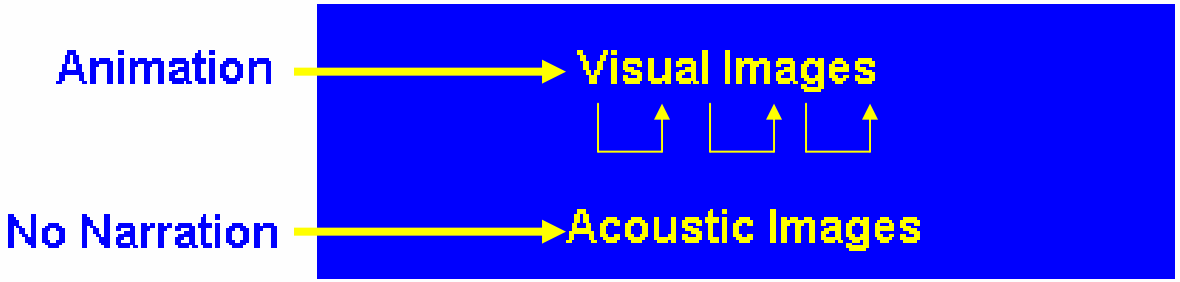


Demo A: Animation + Narration

Demo B: Animation + Text

Cognitive Overloading





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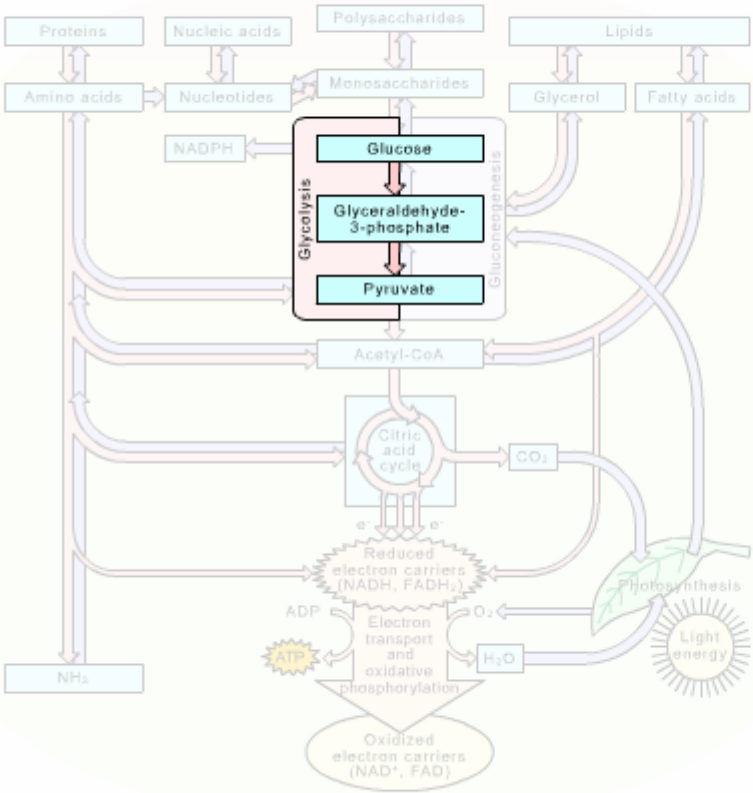

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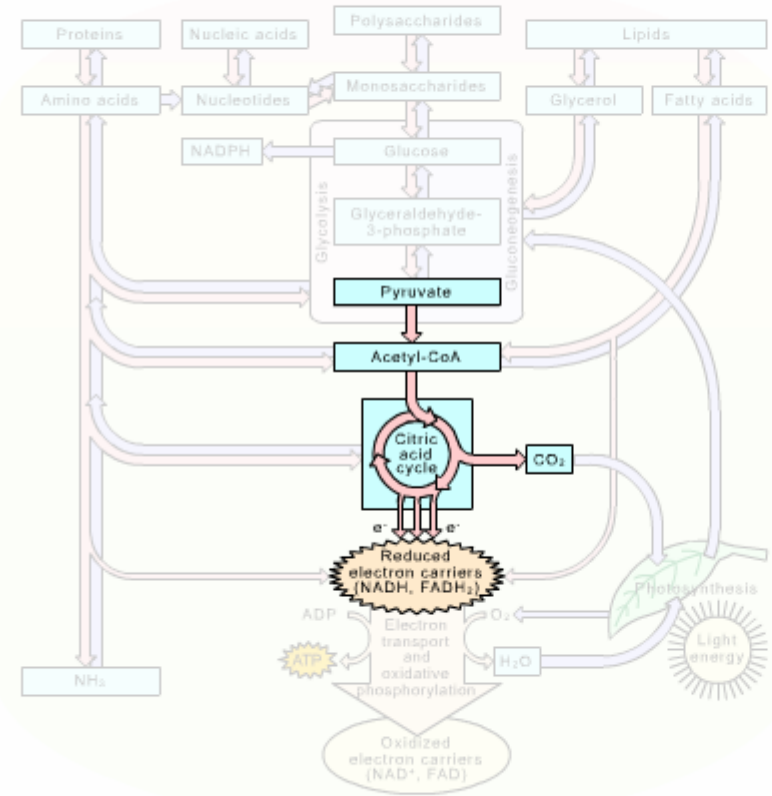

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Follow-up Study: Evaluation of Audio Enhancement in SDLAs

- Frequency of use of the added audio function?
- Preference between text and narration?
- Overloading with simultaneous text, narration and animations on display?
- Convert permanent text into a display option?