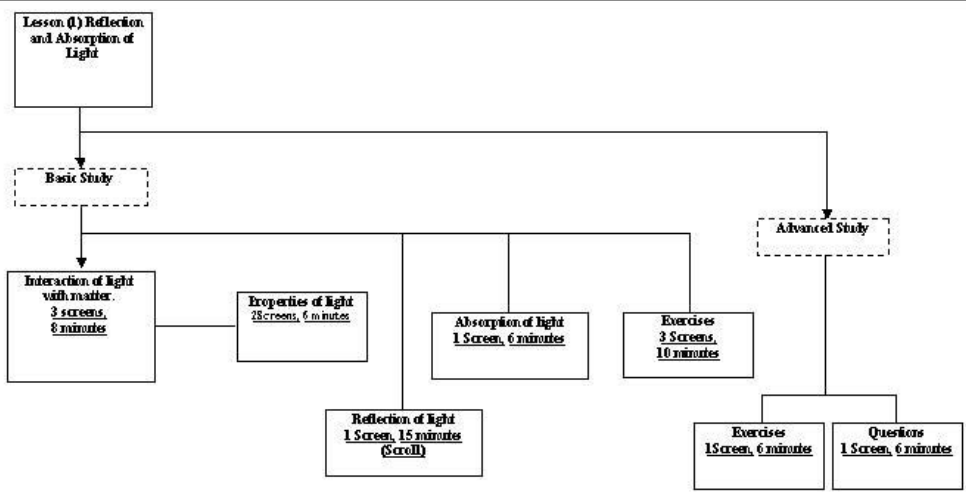# 2nd.
Detailed Design

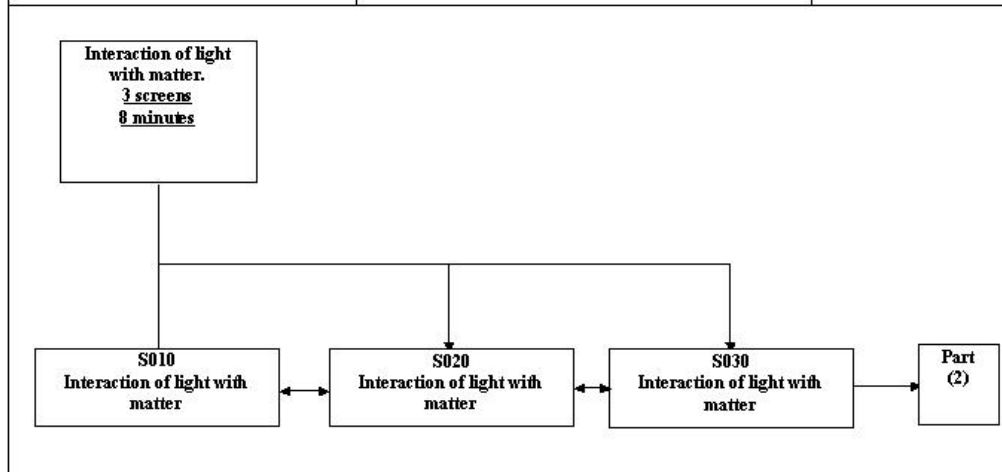## Basic Design Sheet (For Physics) Framework & Cluster

Title: Framework & Cluster	Course Name: Physics Grade 11	Course ID: Phy. G11
Level: [ ] Course, [ ]Chapter,[X] Lesson	Chapter Title: Optical Properties Of Matter	Chapter ID: OPM
	Lesson Title: Reflection and absorption of light	Lesson ID: OPM-L1

Lesson (1) Reflection and Absorption of Light

Basic Study

Advanced Study

Interaction of light with matter.
3 screens,
8 minutes

Properties of light
2Screens, 6 minutes

Absorption of light
1 Screen, 6 minutes

Exercises
3 Screens,
10 minutes

Reflection of light
1 Screen, 15 minutes
(Scroll)

Exercises
1Screen, 6 minutes

Questions
1 Screen, 6 minutes

Appendix 13-9

Basic Design Sheet (For Physics) Framework & Cluster
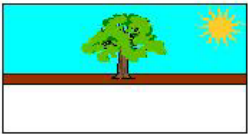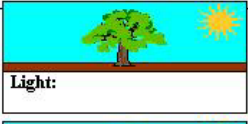
Title: Framework & Cluster	Course Name: Physics Grade 11	Course ID: Phy. G11
Level: [ ] Course, [ ]Chapter, [X] Lesson	Chapter Title: Optical Properties Of Matter	Chapter ID: OPM
Level: [X] Part	Lesson Title: Reflection and absorption of light	Lesson ID: OPM-L1
No: 1	Part Title: Interaction of Light With Matter	

Interaction of light with matter.
3 screens
8 minutes

| S010 Interaction of light with matter | S020 Interaction of light with matter | S030 Interaction of light with matter | Part (2) |

Detail Design Sheet (for Physics) Screen

Title: Screen	Lesson ID: OPM-L1	Screen & Media ID: S010

Define: [X] Screen, [ ]Graphic ID, [ ] Simulation, [ ] Animation, [ ] Movie

Interaction of light with matter:

Animation S010-A01

Sun

Ground

Related Material:
Time Line ID:OPM- L1- S010- T010
Narration ID: S010- V01
Animation ID: S010- A01

Interaction:
Back: -
Next: Part 2
Another:

Simple Time Line:

Comment:

Light: is a form of electromagnetic energy, which upon incidence on the eye's retina causes us to feel the sensation of seeing material objects.
Importance of light: Light plays a vital role in our life; it enables us to see our environment. And when light interacts with matter it generates an electric current, as in the case of the photoelectric cell. Light also helps plants to complete the process of photosynthesis, and it gives us the bodily sensation of warmth.

Detail Design Sheet (for Physics) Storyboard

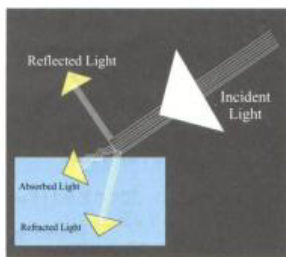| Title: storyboard	Upper ID: OPM- L1- S010
Define: [ ] Screen, [X] Animation, [ ] question	Storyboard ID: S010- A01
Screen Summary	Display, Movie, narration
	Dark screen.
	Screen clears up gradually.
Light:	The definition of light appears
Light: Importance of light	The importance of light appears.

Detail Design Sheet (for Physics) Narration

Narration ID: OPM- L1- S010- V01

❖ Recitation of a verse from the Quraan (verse 35 from the sura of 'Light').
❖ Reading of the definition of light.
❖ Reading of the importance of light.

Detail Design Sheet (for Physics) Time Line

Title: Time Line.	Upper ID: OPM- L1- S010
Define: [X] screen, [ ] animation, [ ] question	Time Line ID: OPM- L1- S010- T01

	Display, Movie, Narration
	❖ 1 minute to recite from the holy Quraan. ❖ 2 minutes to read the text.

Detail Design Sheet (for Physics) Screen

Title: Screen	Lesson ID: OPM-L1	Screen & Media ID: S020

Define: [X] Screen, [ ]Graphic ID, [ ] Simulation, [ ] Animation, [ ] Movie

Interaction of light with matter:
How does light interact with matter?

Figure (9-1)

You notice that the incident light is divided into:
☐ Reflected light.
☐ Refracted light.
☐ Absorbed light.
And what applies to light waves applies to all other electromagnetic waves.

Related Material:
Time Line ID: OPM- L1- S020- T010
Narration ID: S020- V01
Animation ID: S020- A01

Interaction:
Back: -
Next: Part 2
Another:

Simple Time Line:

Comment:

Detail Design Sheet (for Physics) Storyboard

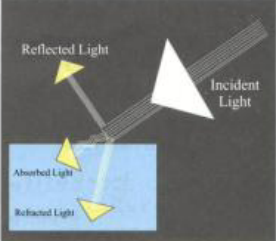| Title: storyboard	Upper ID: OPM- L1- S020
Define: [ ] Screen, [X] Animation, [ ] question	Storyboard ID: S020- A01
Screen Summary	Display, Movie, narration
How does light interact with matter?	Appearance of the question as a text.
How does light...	Appearance of figure (9-1) from the textbook.
How does light...	The names of the four types of beams appears in order: Incident, reflected, refracted, absorbed.
How does light... You notice...	The narrated text appears.

Detail Design Sheet (for Physics) Narration

Narration ID: OPM- L1- S020- V01
❖ A narrative reads the text 5econds after the final figure appears.   ❖ The text takes 10 seconds to be read.   ❖ The narrative needs to be synchronized with the appearance of terms on the figure.

Appendix 13-13

Detail Design Sheet (for Physics) Time Line

Title: Time Line.	Upper ID: OPM- L1- S020
Define: [X] screen, [ ] animation, [ ] question	Time Line ID: OPM- L1- S020- T01

	Display, Movie, Narration
	❖ Appearance of the question for <u>5 seconds</u>. ❖ Appearance of the figure for <u>15 seconds</u>. ❖ Reading of the text synchronously with the appearance of the names of the types of beams, then giving a period of <u>30 seconds</u> to allow the student to think.

Detail Design Sheet (for Physics) Screen

Title: Screen	Lesson ID: OPM-L1	Screen & Media ID: S030
Define: [X] Screen, [ ] Graphic ID, [ ] Simulation, [ ] Animation, [ ] Movie		

| Interaction of light with matter:
 And since energy is conserved, the energy of incident light beam is equal to the sum of energies of the reflected and transmitted beams.

 And we have:
 Incident light energy = reflected light energy + transmitted light energy + absorbed light energy.
 Dividing both sides of this equation by the incident light energy we have:

 $$1 = \frac{\text{reflected light energy}}{\text{incident light energy}} + \frac{\text{transmitted light energy}}{\text{incident light energy}} + \frac{\text{absorbed light energy}}{\text{incident light energy}}$$

 And from that we define:
 1 = coefficient of reflection + coefficient of transmission + coefficient of absorption. | **Related Material:**
 Time Line ID: OPM- L1- S030- T010
 Narration ID: S030- V01
 Animation ID: S030- A01

 Interaction:
 Back: -
 Next: Part 2
 Another:

 Simple Time Line:

 Comment: |

Detail Design Sheet (for Physics) Storyboard

Title: storyboard	Upper ID: OPM- L1- S030
Define: [ ] Screen, [X] Animation, [ ] question	Storyboard ID: S030- A01
Screen Summary	**Display, Movie, narration**
Interaction of light with matter.	Appearance of the question as a text.
Interaction…	Appearance of the previous figure.
Interaction… And we have:	Appearance of the text.
	The narrated text appears.

Detail Design Sheet (for Physics) Narration

Narration ID: OPM-L1- S030- V03

❖ The narrative reads the first text in 20 seconds.
❖ Appearance of the figure accompanied by music for 20 seconds.
❖ The narrative reads the second text in 20 seconds.
❖ While the music is still playing. 1 minutes is left for the students to interact with the content.

Appendix 13-15

Detail Design Sheet (for Physics) Time Line

Title: Time Line.	Upper ID: OPM- L1- S030
Define: [X] screen, [ ] animation, [ ] question	Time Line ID: OPM- L1- S030- T01
	Display, Movie, Narration

❖ Appearance of the question for 20 seconds.
❖ Appearance of the figure for 20 seconds.
❖ Reading of the text for 20 seconds
❖ Giving the student one minute to think.

⇒ ⇒ **And So On to the end of the Lessons/ Chapters……/Textbook** ⇒ ⇒ ⇒