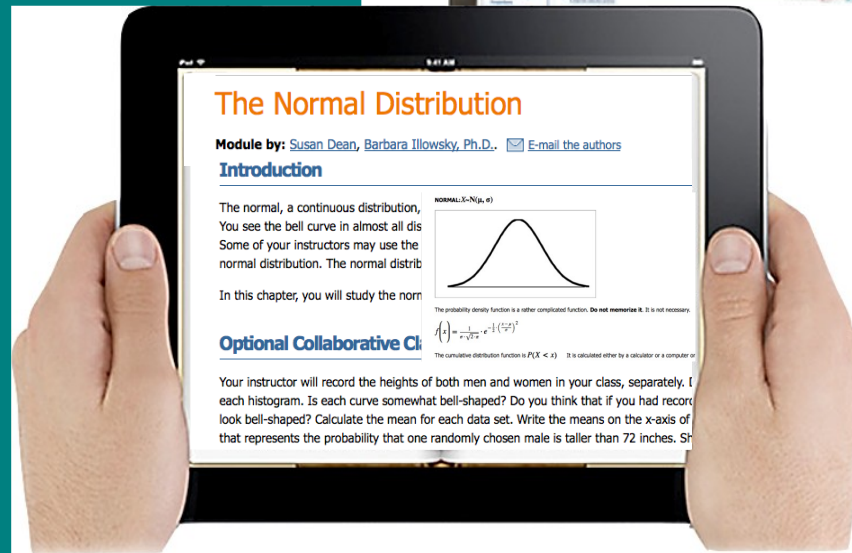
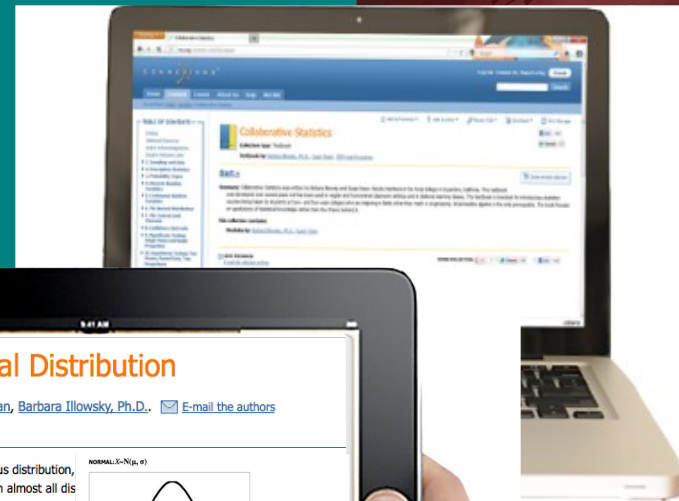
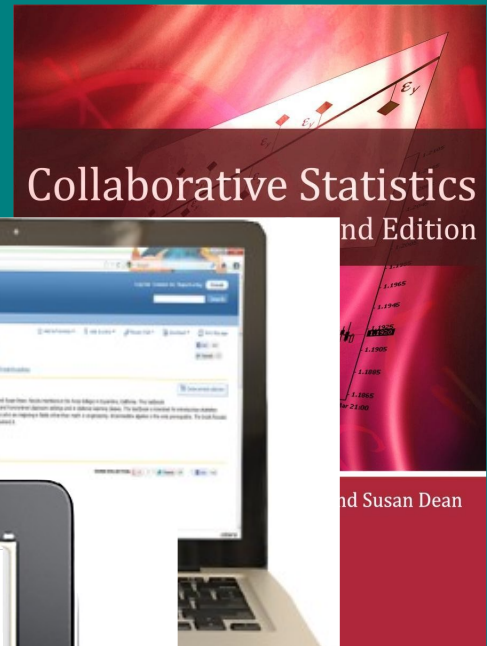


Textbooks in Browsers

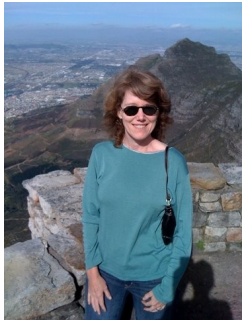
Kathi Fletcher
@kefletcher, @oerpub

bit.ly / fletcher-bib13



kathi.fletcher@gmail.com

My Background



Kathi Fletcher

Connexions PM and Technical Director 4 Yrs
Shuttleworth Foundation Fellow 3 Yrs



Tools for Remixing Open Education Resources

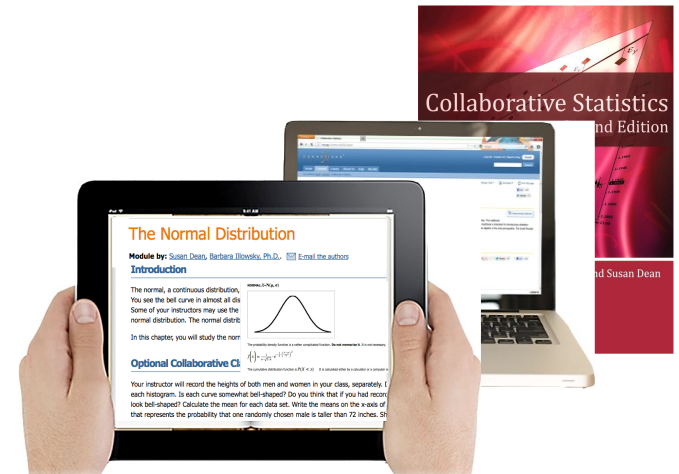
Vision for learning



Content with
connections

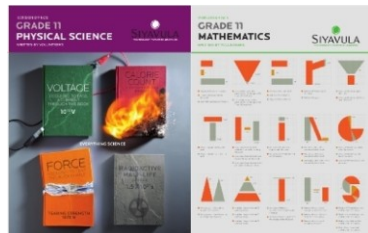
Everywhere I
am, on all my
devices

My classes and
my past
knowledge



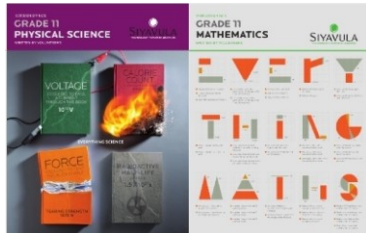
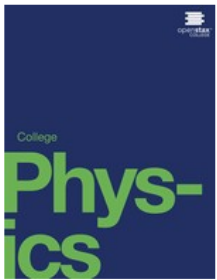
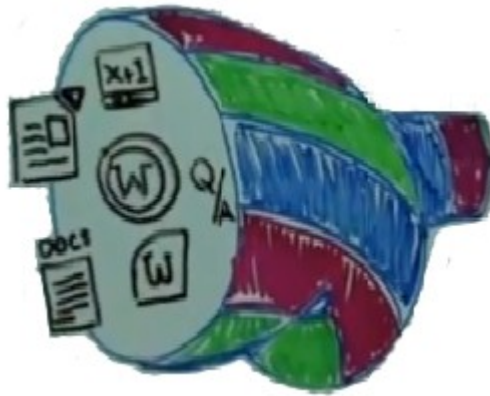
Learning content

classes, textbooks, articles



Transmogrified

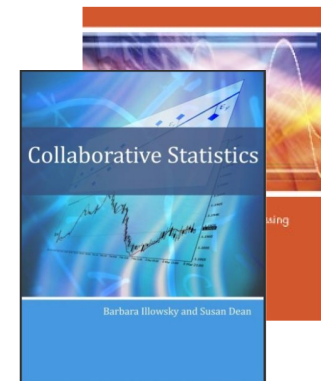
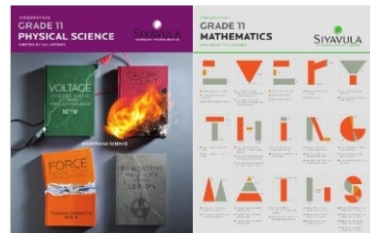
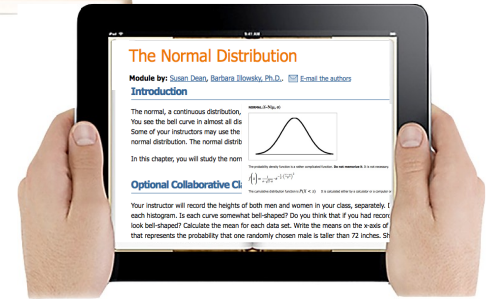
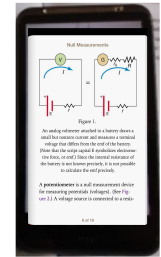
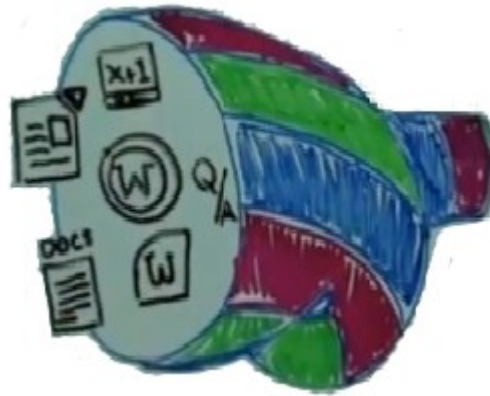
classes, textbooks, articles



Everywhere

classes, textbooks, articles

online, mobile, print



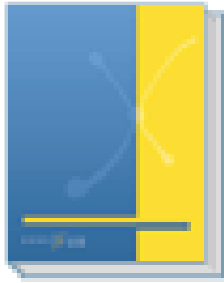
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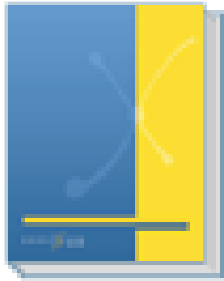
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#bib13

Books & courses in - flash cards out



Learning content in - practice probs out



=>

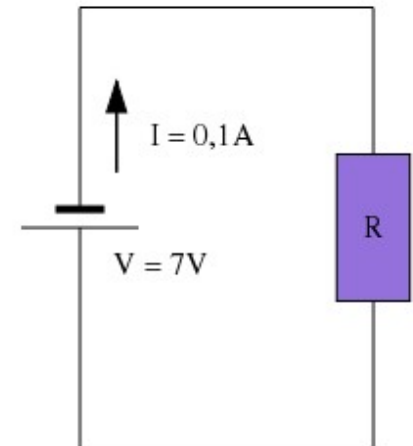


SIYAVULA

TECHNOLOGY-POWERED LEARNING

Understanding Ohm's Law

Consider the circuit which contains one resistor below.



Calculate the resistance R of the resistor. Round your answer to 2

Answer: resistance = Ω [2/2 marks]

How? Find definitions for flash cards.

Velocity

Your notion of velocity is probably the same as its scientific definition. You know that if you have a large displacement in a small amount of time you have a large velocity, and that velocity has units of distance divided by time, such as miles per hour or kilometers per hour.

AVERAGE VELOCITY:

Average velocity is displacement (change in position) divided by the time of travel,

$$\bar{v} = \frac{\Delta x}{\Delta t} = \frac{x_f - x_0}{t_f - t_0}, \quad (2)$$

where \bar{v} is the average (indicated by the bar over the v) velocity, Δx is the change in position (or displacement), and x_f and x_0 are the final and beginning positions at times t_f and t_0 , respectively. If the starting time t_0 is taken to be zero, then the average velocity is simply

How? Find learner's notes



Kathi Fletcher

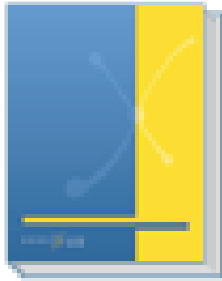
Resolve

11:39 PM Today

Carpetbaggers: Northerners who came to the South after the civil war

Edit Delete

Reply to this comment...



Kathi Fletcher

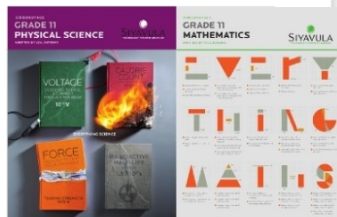
Resolve

11:39 PM Today

$F = MA$ Force equals mass times acceleration

Edit Delete

Reply to this comment...



How? Find exercises and problems

Check Your Understanding

A commuter train travels from Baltimore to Washington, DC, and back in 1 hour and 45 minutes. The distance between the two stations is approximately 40 miles. What is (a) the average velocity of the train, and (b) the average speed of the train in m/s?

Solution

(a) The average velocity of the train is zero because $\mathbf{x}_f = \mathbf{x}_0$; the train ends up at the same place it starts.

(b) The average speed of the train is calculated below. Note that the train travels 40 miles one way and 40 miles back, for a total distance of 80 miles.

$$\frac{\text{distance}}{\text{time}} = \frac{80 \text{ miles}}{105 \text{ minutes}} \quad (5)$$

$$\frac{80 \text{ miles}}{105 \text{ minutes}} \times \frac{5280 \text{ feet}}{1 \text{ mile}} \times \frac{1 \text{ meter}}{3.28 \text{ feet}} \times \frac{1 \text{ minute}}{60 \text{ seconds}} = 20 \text{ m/s} \quad (6)$$

[Hide Solution]

What is needed to achieve the vision?

Common Format

- Recognizable structure (definitions, exercises, etc.)

Easy to use editor for authors

Easy to extend

Publicly available books

All possible now

- **HTML5 (language of the web)**
 - Separate structure and style
 - HTMLBook, TextbookHTML
- **EPUB3 (language of mobile web)**
- **Browser-based technology**
 - Create, annotate, view on the web
- **Content hosts**
 - Github, Connexions

Github-Bookeditor

The screenshot shows a web browser window titled "OERPUB GitHub book editor - Chromium". The address bar shows the URL: `editor.oerpub.org/#repo/kathi-fletcher/demo-book/edit/content/01-Skills-for-science.section-01.html|content/siyavula-physics-12.opf`. The interface includes a "Table of Contents" sidebar on the left with a "Book Picker" and a main editing area. The editing area has a toolbar with various text formatting options (Normal Text, Bold, Italic, Underline, Superscript, Subscript, Link, List, Table, Image, Grid, Math) and a "Save All" button. Below the toolbar is a "Drag to add a new ..." section with buttons for "Note to reader", "Activity", "Exercise", "Quotation", "Numbered Equation", "Multipart", and "Definition". The main content area displays a "Definition Einstein field equation" section with the text "Here is the definition." and a mathematical equation $\theta = x^2 + \sin y$ labeled (1). Below this is a "General relativity" section with two paragraphs of text. The first paragraph discusses the two-dimensional analogy of spacetime distortion. The second paragraph discusses the effects of gravitation in general relativity. The third paragraph discusses Einstein's theory of general relativity and geodesics. The fourth paragraph discusses Einstein's discovery of the field equations of general relativity.

Principles: as much like word/gdocs as possible

Saved Preview Normal text **B** *I* U A^s A_s x^2+1

Drag to add a new ...

- Example 1
- Exercise 2
- Note to Reader
- Definition
- Numbered Equation 3

[What are these?](#)

Similarly, the third rule promises us that $(7^{12})^4 = 7^{48}$

These rules can be used to combine and simplify expressions.


Theoretical Perspectives on Education

Functionalism

Functionalists view education as one of the more important social institutions in a society. They contend that education contributes two kinds of functions: manifest (or primary) functions, which are the intended and visible functions of education; and latent (or secondary) functions, which are the hidden and unintended functions.

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There are several major manifest functions associated with education. The first is socialization. Beginning in preschool and kindergarten, students are taught to practice various societal roles. The French sociologist Émile Durkheim (1858-1917), who established the academic discipline of sociology, characterized schools as "socialization agencies that teach children how to get along with others and prepare them for adult economic roles" (Durkheim 1898).



Description missing

Principle: support attribution

Insert image

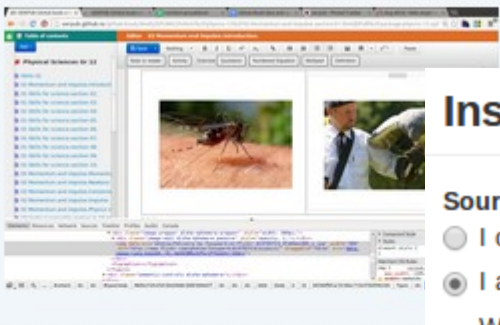


Image title:
Shows up above image

Image caption:
Shows up below image

Describe the image for someone who cannot see it.
aloud, making it possible for visually impaired learners to understand the image.

Enter description ...

Insert image

Source for this image (Required)

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I am allowed to reuse it:

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Permission to reuse

I don't know (skip citation for now)

Principle: born accessible

Images, tables, mathematics



⚠ Image is missing a description for the visually impaired. Click to provide one.

Principle: Mathematics editing support

Editor: Scientific Theories Save All

Normal Text **B** *I* U A⁵ A₅ x^{2+1}

Drag to add a new ... Note to reader Activity Exercise Quotation Numbered Equation Multipart Definition

that the Universe had to be non-static—it had to either expand or contract. The expansion of the universe discovered by Edwin Hubble in 1929 confirmed this prediction.[15]

- The theory's prediction of frame dragging was consistent with the recent Gravity Probe B results.[16]
- General relativity predicts that light from distant galaxies is red-shifted. In 1929, Edwin Hubble and Milton L. Humason at the University of Copenhagen collected data on the red shift of galaxies, showing that the distance to galaxies is proportional to their red shift, confirming the expansion of the universe.

This is: ASCIIMath LaTeX Plain text

$$x^2 + y^2 = z^2 \forall x, y, z$$

Gravity and quantum mechanics

In the decades after the discovery of general relativity it was realized that general relativity is incompatible with quantum mechanics.[18] It is possible to describe gravity in the framework of quantum field theory like the other fundamental forces, such that the attractive force of gravity arises due to exchange of virtual gravitons, in the same way as the electromagnetic force arises from exchange of virtual photons.[19][20] This reproduces general relativity in the classical limit. However, this approach fails at small distances of the order of the Planck length,[18] where a more complete theory of quantum gravity (or a new approach to quantum mechanics) is required.

Atomic theory

Math Cheat Sheet: Copy the "code" that matches the display you want. Paste it into the math entry box above. Adjust as needed.

- ASCIIMath
- LaTeX

Display:	$\frac{\sqrt{2}}{2}$	πr^2	$x \leq 0$	$x \rightarrow \infty$	$\left(\frac{A+X}{2}, \frac{B+Y}{2}\right)$	$\sum_{k=0}^{s-1} \left(\dots \right)$
ASCIIMath code:	sqrt(2)/2	pir^2 or pi r^2	x <= 0	x -> oo	((A+X)/2 , (B+Y)/2)	sum_{k=0}^{s-1}

Principle: drag and drop examples, exercises, notes

The screenshot shows a web browser window with the URL `editor.oerpub.org/#repo/kathi-fletcher/demo-book/edit/content/02-Momentum-and-impulse.section-02.html`. The page title is "Editor: Momentum". The interface includes a top navigation bar with a "Save All" button and a settings icon. Below the navigation bar is a rich text editor toolbar with options for "Normal Text", bold (B), italic (I), underline (U), superscript (A^S), subscript (A_S), link, list, ordered list, numbered equation (x²⁺¹), and insert. A "Drag to add a new ..." menu is open, showing options for "Note to reader", "Activity", "Exercise", "Quotation", "Numbered Equation", "Multipart", and "Definition". The main content area displays the title "Momentum" and a paragraph: "Momentum is a physical quantity which is closely related to forces. Momentum is a property which applies to moving objects, in fact it is mass in motion. If something has mass and it is moving then it has momentum." Below this is a definition box titled "Definition Momentum" with the text: "The linear momentum of a particle (object) is a vector quantity equal to the product of the mass of the particle (object) and its velocity." A black box with white text "Drag this definition to another location" is overlaid on the definition box. Below the definition box, the text reads: "The momentum (symbol \vec{p}) of an object of mass m moving at velocity v is:" followed by the equation
$$\vec{p} = m\vec{v}$$
 and a paragraph: "Momentum is directly proportional to both the mass and velocity of an object. A small car travelling at the same velocity as a big truck will have a smaller momentum than the truck. The smaller the mass, the smaller the momentum for a fixed velocity. If the mass is constant then the greater the velocity the greater the momentum. The momentum will always be in the same direction as the velocity because mass is a scalar not a vector."

Principle: Support collaboration

The screenshot shows a web browser window titled "OERPub GitHub book editor - Chromium". The address bar shows the URL: editor.oerpub.org/#repo/kathi-fletcher/demo-book/edit/content/01-Skills-for-science.section-01.html|content/siyavula-physics-12.opf. The interface includes a "Table of Contents" sidebar on the left with a "Book Picker" and a "Scientific Theories" section highlighted. The main editor area has a title "Editor: Scientific Theories" and a "Save All" button. A rich text editor toolbar is visible with options like "Normal Text", "B", "I", "U", "A^S", "A_S", "Link", "List", "Table", "Equation", and "Image". Below the toolbar are buttons for "Note to reader", "Activity", "Exercise", "Quotation", "Numbered Equation", "Multipart", and "Definition". The document content shows a "Definition Einstein field equation" section with the text "Here is the definition." followed by the equation $\theta = x^2 + \sin y$ labeled (1). Below this is a "General relativity" section with two paragraphs of text. The first paragraph discusses the two-dimensional analogy of spacetime distortion. The second paragraph discusses the effects of gravitation in general relativity.

About github-bookeditor

- **Usability, accessibility**
- **Books stored on github**
- **Format EPUB3/HTML5 (TextbookHTML)**
- **Edit in the browser**

- **Open source (github.com/oerpub)**
- **Based on Aloha**
- **Embeddable, adaptable**

View book on github

oerpub.github.io/demo-book/



Contents of EPUB

IEB Physics Outline

1. [Introduction to this editor and project](#)
2. [01 Vectors](#)
3. [02 Kinematics](#)
4. [03 Newtons Laws](#)
5. [04 MomentumAndImpulse](#)
6. [05 WorkEnergyPower](#)
7. [06 NewtonsLawUniversalGravitation](#)
8. [07 Electrostatics](#)
9. [08 ElectricCircuits](#)
10. [09 Electrodynamics](#)
11. [10 PhotoElectricEffectAndEmissionSpectra](#)
12. [template](#)

Siyavula: Physics Gr 12

1. [Introduction to this editor and project](#)
2. Momentum and Impulse
 1. [Introduction to Momentum and Impulse](#)
 2. [Momentum](#)
 3. [Newton's Second Law Revisted](#)
3. Science Basics
 1. [Scientific Theories](#)
 2. [How Science Works](#)
 3. [Lab Safety](#)

undefined

Introduction

In Grade 10 we studied motion but not what caused the motion, in Grade 11 we learnt about forces and how they can alter the motion of an object. In this chapter we will focus on what happens when two bodies undergo a contact interaction and how their motion is affected. We learn more about how force and motion are related. We are introduced to two new concepts, momentum and impulse.

We can begin by considering some scenarios to set the context. Most people have some intuition for physics based on their everyday experiences but they haven't formalised it. We can use our intuitive answers to lead into more structured thinking about physical events.

Momentum transfer doesn't require a contact interaction but we won't consider any non-contact scenarios in this chapter.

Everyone has experienced a mosquito landing on their arm and it can happen quite unnoticed. Consider the case of a falcon landing on your arm (ignore the sharp claws for now). You would definitely notice, why? What makes a mosquito different to a falcon? Would you still notice if the mosquito flew the same way as a falcon, or if the falcon copied the flight of a mosquito before landing? You probably would still notice, but try to think about what makes them so different.

Table 1



Look at a motorcycle, motorcar and truck. Which of them is more likely to result in less damage in a collision situation, why? What factors would you change to reduce potential damage.

Table 2



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Build History

Build Info

Rebuild PDF

Status: COMPLETED
Created: 5 hours ago
Duration: 8 seconds

```
1 Pulling remote updates
2 Already up-to-date.
3 Checking if mimetype file exists
4 {"msg":"Reading file","path":"mimetype"}
5 {"msg":"Reading file","path":"META-INF/container.xml"}
6 {"msg":"jQuery built for file","path":"META-INF/container.xml"}
7 {"msg":"Reading file","path":"content/siyavula-physics-12.opf"}
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9 Reading ToC Navigation file
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12 {"msg":"Reading file","path":"content/Project-intro.html"}
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14 {"msg":"Reading file","path":"content/02-Momentum-and-impulse.section-02.html"}
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16 {"msg":"Reading file","path":"content/01-Skills-for-science.section-01.html"}
```

@oerpub

@kefletcher

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#bib13

Services: PDF on demand

has a circular orbit. Using the equation for the circumference, C , of a circle in terms of its radius, we can determine the distance travelled by the Moon in one orbit:

$$\begin{aligned}C &= 2\pi r \\ &= 2\pi(3,844 \times 10^8) \\ &= 2,42 \times 10^9 \text{ m}\end{aligned}$$

Combining the distance travelled by the Moon in an orbit and the time taken by the Moon to complete one orbit, we can determine the magnitude of the Moon's velocity or speed,

$$\begin{aligned}v &= \frac{\Delta x}{\Delta t} \\ &= \frac{C}{T} \\ &= \frac{2,42 \times 10^9 \text{ m}}{2,36 \times 10^6 \text{ s}} \\ &= 1,02 \times 10^3 \text{ m}\cdot\text{s}^{-1}.\end{aligned}$$

Finally calculate the momentum and quote the answer


The magnitude of the Moon's momentum is:

Other versions of the editor: remix.oerpub.org

OERPUB Connexions Importer

Create, edit, and adapt content in Connexions



Choose one of the following to create, import, or edit the contents of a new or existing module.

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[Create a new module »](#)

[Edit an existing module »](#)


Or use one of our Importer tools

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[Choose file and preview »](#)

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Or try our alpha Importer tools

 **Microsoft Presentation** -  **Open/Libre Office Impress** ^{alpha}

Other versions of the editor: remix.oerpub.org

« Back: Return to start page

Next: Describe module »

Saved



Normal Text

B *I* U A^s A_s



x^2+1

Add a new...

Drag to add a new ...

Note to reader

Activity

Exercise

Quotation

Numbered Equation

Theoretical Perspectives on Education

Functionalism Demo

Functionalists view education as one of the more important social institutions in a society. They contend that education contributes two kinds of functions: manifest (or primary) functions, which are the intended and visible functions of education; and latent (or secondary) functions, which are the hidden and unintended functions.

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There are several major manifest functions associated with education. The first is socialization. Beginning in preschool and kindergarten, students are taught to practice various societal roles. The French sociologist Émile Durkheim (1858-1917), who established the academic discipline of sociology, characterized schools as "socialization agencies that teach children how to get along with others and prepare them for adult economic roles" (Durkheim 1898).

Connexions' version of the editor

The screenshot shows a web-based editor interface. At the top, there is a toolbar with a home icon, an 'Add' button, a dropdown menu set to 'Nothing', and buttons for bold (B), italic (I), underline (U), image insertion, a math symbol (x²), and a 'Note' button. To the right of these are four list-style icons. On the left side, a sidebar displays a document structure for 'Moby Dick', including a '(Back to Workspace)' link and a list of chapters: 'The Carpet-Bag' (with a sub-item 'Loomings'), 'The Spouter-Inn.', 'Breakfast.', 'The Street.', 'The Pulpit.', 'The Sermon.', 'A Bosom Friend.', 'Epilogue', and 'Copyright Page'. The main editing area features a large title 'Chapter 1. Loomings' and two tabs: 'Metadata' and 'Roles'. The text area contains the beginning of the text: 'Call me Ishmael. Some years ago—never mind how long precisely—having little or no money in my purse, and nothing particular to in There now is your insular city of the Manhattoes, belted round by wharves as Indian isles by coral reefs—commerce Circumambulate the city of a dreamy Sabbath afternoon. Go from Corlears Hook to Coenties Slip, and from thence, But look! here come more crowds, pacing straight for the water, and seemingly bound for a dive. Strange! Nothing w Once more. Say you are in the country; in some high land of lakes. Take almost any path you please, and ten to one But here is an artist. He desires to paint you the dreamiest, shadiest, quietest, most enchanting bit of romantic lands Now, when I say that I am in the habit of going to sea whenever I begin to grow hazy about the eyes, and begin to be

Another adaptation: DHWriter

DHWriter Editor x
dhwriter.org/?id=1

dhwriter.org | [1] | Not Saved | Sign In

Tools

Statistics
Words: 748 / 5000

Export

- TEI
- HTML
- PDF
- Review PDF

Bug report

- Submit by e-mail
- Github

Welcome to DHwriter Demo Author

Why should I try DHwriter?

As you know, every year, reformatting the abstracts from their original submission formats (Word, PDF, etc.) into TEI (for publishing the on-line version and the book of abstracts) is a long and tedious process. Previous local organisers all agree that this task is one of the most time-consuming of the entire local organisation "adventure". In order to progress in making the process smoother, our local team has been actively working since the Nebraska meeting to build a web interface for writing the abstracts in a format that would make possible:

- the reviewing process as usual using Conftool
- an exportation in TEI for publishing the proceedings.

This tool, completely independent from Conftool, should deal with all the key features you may want to include in an abstract (citations, figures, etc.). It can export in TEI and in a format we call "review PDF" which is containing an automatically rendered layout of the abstract and on-line link to check a clean TEI-based version. The first version of this tool is accessible on dhwriter.org. It is far from perfect as it has been developed in just a few weeks. We made the code open-source and already available on GitHub.

How should I use DHwriter to publish in DH2014?

You can think of DHwriter as a simplified version of Google docs. You can insert section, figures, lists, etc. A word counter indicates how long is currently your text.

1) Click on the **Sign In** button above.

Not Saved | Sign In

Demo Author

Fig. 1

Try it out

Bookeditor (alpha): (Chrome only right now)

If you don't have a github account, x out of the login and you can be anonymous

Demo book opens and has some more information and links

editor.oerpub.org

or

oerpub.github.io/github-bookeditor

Developers:

github.com/oerpub/github-bookeditor

github.com/oerpub/Aloha-Editor

github.com/philschatz/ndf-ci



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Hackday Tomorrow!

October 26, San Francisco



Philip Schatz
philschatz

**Find Phil – key designer, developer
cnx.org**

**Help us integrate EPUBjs and
Hypothes.is**

**Use vagrant to get a developer
instance up
and explore your own ideas to
extend the editor.**



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