



education

Department of
Education
FREE STATE PROVINCE

PHYSICAL SCIENCES PAPER 1 (PHYSICS)

GRADE 12

TERMS & DEFINITIONS, QUESTIONS & ANSWERS PER TOPIC

2021



TABLE OF CONTENTS



HOW TO USE THIS DOCUMENT	2
TERMS AND DEFINITIONS	2
QUESTIONS	7
NEWTON'S LAWS	7
VERTICAL PROJECTILE MOTION	12
MOMENTUM AND IMPULSE	17
WORK, ENERGY AND POWER	23
DOPPLER EFFECT	29
ELECTROSTATICS	34
ELECTRIC CIRCUITS	41
ELECTRICAL MACHINES	51
OPTICAL PHENOMENA AND PROPERTIES OF MATERIALS	56
ANSWERS TO QUESTIONS	63
NEWTON'S LAWS	63
VERTICAL PROJECTILE MOTION	71
MOMENTUM AND IMPULSE	85
WORK, ENERGY AND POWER	90
DOPPLER EFFECT	99
ELECTROSTATICS	104
ELECTRIC CIRCUITS	115
ELECTRICAL MACHINES	125
OPTICAL PHENOMENA AND PROPERTIES OF MATERIALS	132
BIBLIOGRAPHY	139



Physical Science Grade1june Questions For Paper

Michael Seilmaier



Physical Science Grade1june Questions For Paper:

The Top Books of the Year Physical Science Grade1june Questions For Paper The year 2023 has witnessed a remarkable surge in literary brilliance, with numerous engrossing novels captivating the hearts of readers worldwide. Lets delve into the realm of popular books, exploring the captivating narratives that have captivated audiences this year. Physical Science Grade1june Questions For Paper : Colleen Hoover's "It Ends with Us" This poignant tale of love, loss, and resilience has gripped readers with its raw and emotional exploration of domestic abuse. Hoover expertly weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can prevail. Physical Science Grade1june Questions For Paper : Taylor Jenkins Reid's "The Seven Husbands of Evelyn Hugo" This captivating historical fiction novel unravels the life of Evelyn Hugo, a Hollywood icon who defies expectations and societal norms to pursue her dreams. Reid's captivating storytelling and compelling characters transport readers to a bygone era, immersing them in a world of glamour, ambition, and self-discovery. Discover the Magic : Delia Owens' "Where the Crawdads Sing" This mesmerizing coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens weaves a tale of resilience, survival, and the transformative power of nature, captivating readers with its evocative prose and mesmerizing setting. These popular novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of compelling stories waiting to be discovered. The novel begins with Richard Papen, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts. The Secret History is an exceptional and gripping novel that will keep you wondering until the very end. The novel is a warning tale about the dangers of obsession and the power of evil.

https://crm.avenza.com/About/book-search/fetch.php/Pulled_Pork_Sanwich_Recipe.pdf

Table of Contents Physical Science Grade1june Questions For Paper

1. Understanding the eBook Physical Science Grade1june Questions For Paper
 - The Rise of Digital Reading Physical Science Grade1june Questions For Paper
 - Advantages of eBooks Over Traditional Books
2. Identifying Physical Science Grade1june Questions For Paper
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Physical Science Grade1june Questions For Paper
 - User-Friendly Interface
4. Exploring eBook Recommendations from Physical Science Grade1june Questions For Paper
 - Personalized Recommendations
 - Physical Science Grade1june Questions For Paper User Reviews and Ratings
 - Physical Science Grade1june Questions For Paper and Bestseller Lists
5. Accessing Physical Science Grade1june Questions For Paper Free and Paid eBooks
 - Physical Science Grade1june Questions For Paper Public Domain eBooks
 - Physical Science Grade1june Questions For Paper eBook Subscription Services
 - Physical Science Grade1june Questions For Paper Budget-Friendly Options
6. Navigating Physical Science Grade1june Questions For Paper eBook Formats
 - ePub, PDF, MOBI, and More
 - Physical Science Grade1june Questions For Paper Compatibility with Devices
 - Physical Science Grade1june Questions For Paper Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Physical Science Grade1june Questions For Paper
 - Highlighting and Note-Taking Physical Science Grade1june Questions For Paper
 - Interactive Elements Physical Science Grade1june Questions For Paper
8. Staying Engaged with Physical Science Grade1june Questions For Paper

- Joining Online Reading Communities
- Participating in Virtual Book Clubs
- Following Authors and Publishers Physical Science Grade1june Questions For Paper
- 9. Balancing eBooks and Physical Books Physical Science Grade1june Questions For Paper
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Physical Science Grade1june Questions For Paper
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Physical Science Grade1june Questions For Paper
 - Setting Reading Goals Physical Science Grade1june Questions For Paper
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Physical Science Grade1june Questions For Paper
 - Fact-Checking eBook Content of Physical Science Grade1june Questions For Paper
 - Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

Physical Science Grade1june Questions For Paper Introduction

Free PDF Books and Manuals for Download: Unlocking Knowledge at Your Fingertips In today's fast-paced digital age, obtaining valuable knowledge has become easier than ever. Thanks to the internet, a vast array of books and manuals are now available for free download in PDF format. Whether you are a student, professional, or simply an avid reader, this treasure trove of downloadable resources offers a wealth of information, conveniently accessible anytime, anywhere. The advent of online libraries and platforms dedicated to sharing knowledge has revolutionized the way we consume information. No longer confined to physical libraries or bookstores, readers can now access an extensive collection of digital books and

manuals with just a few clicks. These resources, available in PDF, Microsoft Word, and PowerPoint formats, cater to a wide range of interests, including literature, technology, science, history, and much more. One notable platform where you can explore and download free Physical Science Grade1june Questions For Paper PDF books and manuals is the internet's largest free library. Hosted online, this catalog compiles a vast assortment of documents, making it a veritable goldmine of knowledge. With its easy-to-use website interface and customizable PDF generator, this platform offers a user-friendly experience, allowing individuals to effortlessly navigate and access the information they seek. The availability of free PDF books and manuals on this platform demonstrates its commitment to democratizing education and empowering individuals with the tools needed to succeed in their chosen fields. It allows anyone, regardless of their background or financial limitations, to expand their horizons and gain insights from experts in various disciplines. One of the most significant advantages of downloading PDF books and manuals lies in their portability. Unlike physical copies, digital books can be stored and carried on a single device, such as a tablet or smartphone, saving valuable space and weight. This convenience makes it possible for readers to have their entire library at their fingertips, whether they are commuting, traveling, or simply enjoying a lazy afternoon at home. Additionally, digital files are easily searchable, enabling readers to locate specific information within seconds. With a few keystrokes, users can search for keywords, topics, or phrases, making research and finding relevant information a breeze. This efficiency saves time and effort, streamlining the learning process and allowing individuals to focus on extracting the information they need. Furthermore, the availability of free PDF books and manuals fosters a culture of continuous learning. By removing financial barriers, more people can access educational resources and pursue lifelong learning, contributing to personal growth and professional development. This democratization of knowledge promotes intellectual curiosity and empowers individuals to become lifelong learners, promoting progress and innovation in various fields. It is worth noting that while accessing free Physical Science Grade1june Questions For Paper PDF books and manuals is convenient and cost-effective, it is vital to respect copyright laws and intellectual property rights. Platforms offering free downloads often operate within legal boundaries, ensuring that the materials they provide are either in the public domain or authorized for distribution. By adhering to copyright laws, users can enjoy the benefits of free access to knowledge while supporting the authors and publishers who make these resources available. In conclusion, the availability of Physical Science Grade1june Questions For Paper free PDF books and manuals for download has revolutionized the way we access and consume knowledge. With just a few clicks, individuals can explore a vast collection of resources across different disciplines, all free of charge. This accessibility empowers individuals to become lifelong learners, contributing to personal growth, professional development, and the advancement of society as a whole. So why not unlock a world of knowledge today? Start exploring the vast sea of free PDF books and manuals waiting to be discovered right at your fingertips.

FAQs About Physical Science Grade1june Questions For Paper Books

How do I know which eBook platform is the best for me? Finding the best eBook platform depends on your reading preferences and device compatibility. Research different platforms, read user reviews, and explore their features before making a choice. Are free eBooks of good quality? Yes, many reputable platforms offer high-quality free eBooks, including classics and public domain works. However, make sure to verify the source to ensure the eBook credibility. Can I read eBooks without an eReader? Absolutely! Most eBook platforms offer webbased readers or mobile apps that allow you to read eBooks on your computer, tablet, or smartphone. How do I avoid digital eye strain while reading eBooks? To prevent digital eye strain, take regular breaks, adjust the font size and background color, and ensure proper lighting while reading eBooks. What the advantage of interactive eBooks? Interactive eBooks incorporate multimedia elements, quizzes, and activities, enhancing the reader engagement and providing a more immersive learning experience. Physical Science Grade1june Questions For Paper is one of the best book in our library for free trial. We provide copy of Physical Science Grade1june Questions For Paper in digital format, so the resources that you find are reliable. There are also many Ebooks of related with Physical Science Grade1june Questions For Paper. Where to download Physical Science Grade1june Questions For Paper online for free? Are you looking for Physical Science Grade1june Questions For Paper PDF? This is definitely going to save you time and cash in something you should think about. If you trying to find then search around for online. Without a doubt there are numerous these available and many of them have the freedom. However without doubt you receive whatever you purchase. An alternate way to get ideas is always to check another Physical Science Grade1june Questions For Paper. This method for see exactly what may be included and adopt these ideas to your book. This site will almost certainly help you save time and effort, money and stress. If you are looking for free books then you really should consider finding to assist you try this. Several of Physical Science Grade1june Questions For Paper are for sale to free while some are payable. If you arent sure if the books you would like to download works with for usage along with your computer, it is possible to download free trials. The free guides make it easy for someone to free access online library for download books to your device. You can get free download on free trial for lots of books categories. Our library is the biggest of these that have literally hundreds of thousands of different products categories represented. You will also see that there are specific sites catered to different product types or categories, brands or niches related with Physical Science Grade1june Questions For Paper. So depending on what exactly you are searching, you will be able to choose e books to suit your own need. Need to access completely for Campbell Biology Seventh Edition book? Access Ebook without any digging. And by having access to our ebook online or by storing it on your computer, you have convenient answers with Physical Science Grade1june Questions For Paper To get started finding Physical Science Grade1june Questions For Paper, you are right to find our website which has a comprehensive collection of books online. Our library is the biggest of these that have literally hundreds of thousands of

different products represented. You will also see that there are specific sites catered to different categories or niches related with Physical Science Grade1june Questions For Paper So depending on what exactly you are searching, you will be able to choose ebook to suit your own need. Thank you for reading Physical Science Grade1june Questions For Paper. Maybe you have knowledge that, people have search numerous times for their favorite readings like this Physical Science Grade1june Questions For Paper, but end up in harmful downloads. Rather than reading a good book with a cup of coffee in the afternoon, instead they juggled with some harmful bugs inside their laptop. Physical Science Grade1june Questions For Paper is available in our book collection an online access to it is set as public so you can download it instantly. Our digital library spans in multiple locations, allowing you to get the most less latency time to download any of our books like this one. Merely said, Physical Science Grade1june Questions For Paper is universally compatible with any devices to read.

Find Physical Science Grade1june Questions For Paper :

pulled pork sandwich recipe

pursuit of his presence daily devotions to strengthen your walk

~~psychsim hemispheric specialization worksheet answers~~

psychology study guide answers myers

psychology in modules 7th edition

pulse induction metal detector circuit diagram

puritan bennett 300 manual

pukka and fremd english edition

pub15examination papers and answers unisa

puerto rican pork chops recipe

psychology guided answers

~~psychology study guide scribe~~

pulsar chronograph 50m watch manual

pure one classic user manual

public accounting report magazine

Physical Science Grade1june Questions For Paper :

harold koontz wikipedia - May 31 2022

web essentials of management harold koontz cyril o donnell heinz wehrich mcgraw hill 1986 management 564 pages preface p xxi part 1 the basis of management theory and science chapter 1 management science theory and practice p 3 chapter 2 management and society social responsibility and ethics p 29 part 2 planning

download principles of management koontz and o donnell - Apr 29 2022

web principles of management an analysis of managerial functions by harold koontz 3 94 avg rating 77 ratings published 1968 9 editions

books by harold koontz author of essentials of management - Jan 27 2022

principles of management amazon in books - Aug 02 2022

web download principles of management koontz and o donnell type pdf date july 2019 size 322 4kb this document was uploaded by user and they confirmed that they

essentials of management harold koontz cyril o donnell - Feb 25 2022

principles of management an analysis of managerial functions - Jul 01 2022

web feb 3 2020 drawing from the theory of miner 1973 this research paper aims to empirically validate the construct of talent management and further throw light on the

principles of management by harold koontz open - Jun 12 2023

web nov 1 2022 principles of management an analysis of managerial functions 5th ed by harold koontz 4 75 4 ratings 115 want to read 6 currently reading 3

essentials of management harold koontz google books - Sep 03 2022

web koontz co authored the book principles of management with cyril j o donnell the book has sold around two million copies and has been translated into 15 languages biography edit koontz was born in 1909 in findlay ohio to

principles of management harold koontz free - Aug 14 2023

web principles of management harold koontz free download borrow and streaming internet archive

h koontz c o donnell principles of management - Oct 04 2022

web principles of management an analysis of manage books principles of management an analysis of managerial functions by harold koontz and cyril o donnell author

principles of management harold koontz cyril - Dec 26 2021

principles of management an analysis of managerial functions - Mar 09 2023

web according to management scholars harold koontz and cyril o donnell the first step in the planning process is awareness
13 it is at this step that managers build the foundation

pdf essentials of management by harold koontz and heinz - Mar 29 2022

principles of management by harold koontz open library - Apr 10 2023

web principles of management an analysis of managerial functions harold koontz 3 94 77 ratings 3 reviews genres business
748 pages hardcover first published january 1 1968

principles of management an analysis of managerial functions - Dec 06 2022

web essentials of management mcgraw hill series in management author harold koontz publisher mcgraw hill 2010 isbn
0070144958 9780070144958 length 464 pages

principles of management an analysis of managerial functions - May 11 2023

web apr 30 2022 principles of management an analysis of managerial functions by koontz harold 1908

management harold koontz heinz wehrich google books - Nov 05 2022

web the book is well known for taking a systems approach to management where the overall management function is
classified into planning organizing staffing leading and

principles of management an analysis of managerial - Feb 08 2023

web principles of management an analysis of managerial functions by harold koontz and cyril o donnell worldcat org

principles of management an analysis of managerial - Jul 13 2023

web principles of management an analysis of managerial functions principles of management harold koontz cyril o donnell
mcgraw hill 1972 industrial

17 2 the planning process principles of management - Jan 07 2023

web management mcgraw hill international editions management series mcgraw hill series in management authors harold
koontz heinz wehrich contributor heinz wehrich edition 9 illustrated

headed for the win nadia and winny book 1 english edition by - Sep 03 2022

web jun 6 2023 for the win nadia and winny book 1 english partner that we have enough money here and check out the link
you could purchase lead headed for the win nadia

headed for the win nadia and winny book 1 english pdf - Aug 02 2022

web headed for the win nadia and winny book 1 english 1 8 downloaded from uniport edu ng on june 30 2023 by guest

headed for the win nadia and winny book 1 english

headwind 21 2021 imdb - Feb 25 2022

web find 31 ways to say headed for along with antonyms related words and example sentences at thesaurus.com the world's most trusted free thesaurus

headed for the win nadia and winny book 1 page 14 - Oct 04 2022

web purchasing a mare nicknamed winny nadia is sure she's bound for equestrian greatness but on the cusp of their most challenging three-day event yet winny bucks nadia off in

headed for the win nadia and winny book 1 english pdf - Jul 01 2022

web headed for the win nadia and winny book 1 english edition by rachael eliker show horse wasn't hard enough nadia has to figure out a way to tell the dashing mike how

headie one edna medley live at the brit awards 2021 ft - Oct 24 2021

headed for the win nadia and winny book 1 english edition by - Sep 22 2021

headed for the win nadia and winny book 1 page 5 - Jan 07 2023

web danika and ms diederich were intently discussing something probably the disaster that was winny and me it was fairly obvious they weren't pleased by their unwavering gaze

the head 4 1 u cimahqadmin - Jan 27 2022

web won by a head is a 1920 british silent sports film directed by percy nash and starring rex davis frank tennant and vera cornish it was set in the horseracing world cast rex

headed for the win nadia and winny book 1 mybookcave.com - Mar 09 2023

web headed for the win nadia p 17 headed for the win nadia and winny book 1 page 17 select voice brian uk emma uk amy uk eric us ivy us joey us salli us

headed for the win nadia and winny book 1 page 9 - Dec 06 2022

web each test was several hours apart giving me time to pull myself together and let winny refuel mike was busy with a couple of high-strung thoroughbreds who'd clipped off their

won by a head wikipedia - Nov 24 2021

web headed for the win nadia and winny book 1 english edition by rachael eliker headed for the win nadia and winny book 1 english edition by rachael eliker

headed for the win nadia and winny book 1 page 17 - Feb 08 2023

web the lights of the nearest town faded as we sped north on i 74 only the occasional semi-truck crossed our path shining their headlights through the car i looked up at the sky

web 000000 the head 000000 00000000 00000000 000000 0000 000 000000 0000 4 000000 1 000000 the head 0000 000000 00000000
000000 00000000 00000000 00 00000000 00000000 0000 0000 0000 000 000000 the head 000000 4 00000000 1 00000000

eastern religions hinduism buddhism taoism confuci pdf - Jun 18 2022

web the best guide to eastern philosophy and religion eastern religions hinduism buddhism taoism confuci downloaded from solutions milnerbrowne com by guest curtis gabrielle material culture and asian religions prentice hall presents a timeline of the history of religion from ancient and classical mythologies to tribal

eastern religions hinduism buddhism taoism confuci 2022 - Apr 28 2023

web what is the place of eastern thought buddhism taoism hinduism confucianism in the western intellectual tradition oriental enlightenment shows how despite current talk of

eastern religions hinduism buddhism taoism confuci - Jul 20 2022

web as eastern religions hinduism buddhism confucianism taoism and jainism students also learn about the abrahamic religions studying in turn judaism christianity and islam each chapter includes an introduction and post reading questions to provide context and facilitate learning reflection and discussion the world religions anthology

hinduism buddhism confucianism and taoism studocu - Sep 21 2022

web buddhism confucianism and taoism 3 other religions of the far east include buddhism confucianism and taoism these ethical religions have no gods like yawheh or allah but espouse ethical and moral principles designed to improve the believer s relationship with the universe

eastern religions hinduism buddhism taoism confuci pdf - May 30 2023

web about the book buddhism vs hinduism this book informs us about the basic essence of buddhism in comparison to hinduism it is essential to start with the first chapter to understand the correct meaning

hinduism buddhism and taoism a history buddhism - May 18 2022

web hinduism buddhism and taoism the three most well known eastern religious traditions share many historical roots and themes just as judaism christianity and islam do in the west this article provides a brief overview of the relationship between these three influential traditions

eastern religions wikipedia - Mar 16 2022

web this includes the east asian religions such as confucianism taoism chinese folk religion shinto and korean shamanism indian religions such as hinduism buddhism jainism and sikhism and southeast asian religions such as vietnamese folk religion as well as animistic indigenous religions

influence of shamanism taoism buddhism and confucianism on - Apr 16 2022

web dec 10 2019 the article is devoted to the influence of eastern religions shamanism taoism buddhism and confucianism on landscape art in china the influence of each particular religion on

eastern religions hinduism buddhism taoism confuci 2023 - Nov 23 2022

web history of buddhism hinduism taoism confucianism and shinto in a detailed study designed to help those in the west who wish to move closer to the spirit of the east

eastern religions hinduism buddhism taoism confuci full pdf - Sep 02 2023

web eastern religions hinduism buddhism taoism confuci material culture and asian religions the rider encyclopaedia of eastern philosophy and religion 4 eastern religions hinduism buddhism taoism confuci 2020 03 12 techniques to facilitate change relationships between the religious tradition and other traditions and

easternreligionshinduismbuddhismtaoismconfuci copy - Feb 12 2022

web eastern religions reader hillary rodrigues 2020 12 13 designed as an introductory reader for an eastern religions course this ebook provides key texts for illustrating the eastern religious traditions hinduism buddhism jainism sikhism confucianism daoism and shintoism there are 41 passages from religious writings 15 symbols 7

eastern religions hinduism buddhism taoism confucianism - Aug 21 2022

web aug 22 2023 eastern faiths buddhism hinduism taoism the mon grounds buddhism confucianism taoism and eastern religions confucianism shinto hinduism eastern religions wikimili the free encyclopedia eastern religions hinduism buddhism taoism buddhism and eastern religions parative religion eastern hinduism buddhism and

buddhism and eastern religions wikipedia - Jan 26 2023

web selfhood and identity in confucianism taoism buddhism and hinduism contrasts with the west the influence of confucianism and buddhism on chinese business asian religions an introduction to the study of hinduism buddhism islam

eastern religions hinduism buddism taoism confucianism - Aug 01 2023

web may 6 2005 this fascinating volume provides a concise illustrated introduction to five of the great religious traditions of the world buddhism hinduism taoism confucianism and shinto buddhism one of the world s great religious traditions attracts millions of modern day followers hinduism one of the most ancient of all belief systems is

hinduism buddhism confucianism and taoism cliffsnotes - Feb 24 2023

web more than 600 million hindus practice the religion worldwide though most reside in india unlike moslems and christians hindus do not usually proselytize attempt to convert others to their religion buddhism confucianism and taoism three other religions of the far east include buddhism confucianism and taoism

comparison of eastern faiths buddhism hinduism taoism - Oct 03 2023

web confucianism and taoism both indicate that harmony and peace on earth are goals of their teachings and codes of ethical behavior 886 taoism s confucianism s and buddhism s schools of thought have been influencing each other for centuries for instance much of confucian thought is borrowed from taoism and buddhism 1009 there has been a

ancient eastern philosophy buddhism hinduism taoism - Dec 25 2022

web exploring the ancient wisdom of eastern philosophy metaphysics brief summaries pictures and quotes on buddhism hinduism taoism and confucianism explaining the dynamic unity of reality foundation of eastern philosophy with

eastern religions hinduism buddhism taoism confuci 2022 - Jun 30 2023

web the illuminati with the main eastern religions of hinduism buddhism and taoism and suggests that all four religions can be brought together under one banner enlightenment that may

eastern religions hinduism buddism taoism confucian - Mar 28 2023

web eastern religions with general editor michael d coogan is a basic guide to the salient points of hinduism buddhism taoism confucianism and shinto it is a very informative book with lovely pictures that display people in worship and various places connected to the religion in question

eastern religions hinduism buddhism taoism confuci pdf free - Oct 23 2022

web of eastern thought are discussed including hinduism buddhism confucianism daoism taoism and chan zen the author connects the ideas of these schools to those of western philosophy thereby making the material accessible