

# Metallurgy

For the

## Non-Metallurgist

Advancing the Metallurgical Industry



Edited by  
Arthur C. Reedman



INTERNATIONAL ASSOCIATION OF METALLURGICAL ENGINEERS

# Metallurgy For The Non Metallurgist Second Edition

**DP Hallahan**



## **Metallurgy For The Non Metallurgist Second Edition:**

## Unveiling the Energy of Verbal Art: An Mental Sojourn through **Metallurgy For The Non Metallurgist Second Edition**

In a global inundated with screens and the cacophony of instantaneous conversation, the profound energy and psychological resonance of verbal art usually diminish in to obscurity, eclipsed by the constant onslaught of noise and distractions. Yet, situated within the lyrical pages of **Metallurgy For The Non Metallurgist Second Edition**, a captivating function of fictional beauty that pulses with fresh feelings, lies an remarkable trip waiting to be embarked upon. Composed with a virtuoso wordsmith, this magical opus courses readers on a psychological odyssey, softly revealing the latent possible and profound affect stuck within the delicate web of language. Within the heart-wrenching expanse of this evocative examination, we shall embark upon an introspective exploration of the book is main themes, dissect its interesting publishing model, and immerse ourselves in the indelible impression it leaves upon the depths of readers souls.

<https://splashdogs.com/public/publication/default.aspx/Greek%20And%20Latin%20Roots%20Posters.pdf>

### **Table of Contents Metallurgy For The Non Metallurgist Second Edition**

1. Understanding the eBook Metallurgy For The Non Metallurgist Second Edition
  - The Rise of Digital Reading Metallurgy For The Non Metallurgist Second Edition
  - Advantages of eBooks Over Traditional Books
2. Identifying Metallurgy For The Non Metallurgist Second Edition
  - 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 Metallurgy For The Non Metallurgist Second Edition
  - User-Friendly Interface
4. Exploring eBook Recommendations from Metallurgy For The Non Metallurgist Second Edition
  - Personalized Recommendations

- Metallurgy For The Non Metallurgist Second Edition User Reviews and Ratings
- Metallurgy For The Non Metallurgist Second Edition and Bestseller Lists
- 5. Accessing Metallurgy For The Non Metallurgist Second Edition Free and Paid eBooks
  - Metallurgy For The Non Metallurgist Second Edition Public Domain eBooks
  - Metallurgy For The Non Metallurgist Second Edition eBook Subscription Services
  - Metallurgy For The Non Metallurgist Second Edition Budget-Friendly Options
- 6. Navigating Metallurgy For The Non Metallurgist Second Edition eBook Formats
  - ePub, PDF, MOBI, and More
  - Metallurgy For The Non Metallurgist Second Edition Compatibility with Devices
  - Metallurgy For The Non Metallurgist Second Edition Enhanced eBook Features
- 7. Enhancing Your Reading Experience
  - Adjustable Fonts and Text Sizes of Metallurgy For The Non Metallurgist Second Edition
  - Highlighting and Note-Taking Metallurgy For The Non Metallurgist Second Edition
  - Interactive Elements Metallurgy For The Non Metallurgist Second Edition
- 8. Staying Engaged with Metallurgy For The Non Metallurgist Second Edition
  - Joining Online Reading Communities
  - Participating in Virtual Book Clubs
  - Following Authors and Publishers Metallurgy For The Non Metallurgist Second Edition
- 9. Balancing eBooks and Physical Books Metallurgy For The Non Metallurgist Second Edition
  - Benefits of a Digital Library
  - Creating a Diverse Reading Collection Metallurgy For The Non Metallurgist Second Edition
- 10. Overcoming Reading Challenges
  - Dealing with Digital Eye Strain
  - Minimizing Distractions
  - Managing Screen Time
- 11. Cultivating a Reading Routine Metallurgy For The Non Metallurgist Second Edition
  - Setting Reading Goals Metallurgy For The Non Metallurgist Second Edition
  - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Metallurgy For The Non Metallurgist Second Edition
  - Fact-Checking eBook Content of Metallurgy For The Non Metallurgist Second Edition

- 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

### **Metallurgy For The Non Metallurgist Second Edition Introduction**

In today's digital age, the availability of Metallurgy For The Non Metallurgist Second Edition books and manuals for download has revolutionized the way we access information. Gone are the days of physically flipping through pages and carrying heavy textbooks or manuals. With just a few clicks, we can now access a wealth of knowledge from the comfort of our own homes or on the go. This article will explore the advantages of Metallurgy For The Non Metallurgist Second Edition books and manuals for download, along with some popular platforms that offer these resources. One of the significant advantages of Metallurgy For The Non Metallurgist Second Edition books and manuals for download is the cost-saving aspect. Traditional books and manuals can be costly, especially if you need to purchase several of them for educational or professional purposes. By accessing Metallurgy For The Non Metallurgist Second Edition versions, you eliminate the need to spend money on physical copies. This not only saves you money but also reduces the environmental impact associated with book production and transportation. Furthermore, Metallurgy For The Non Metallurgist Second Edition books and manuals for download are incredibly convenient. With just a computer or smartphone and an internet connection, you can access a vast library of resources on any subject imaginable. Whether you're a student looking for textbooks, a professional seeking industry-specific manuals, or someone interested in self-improvement, these digital resources provide an efficient and accessible means of acquiring knowledge. Moreover, PDF books and manuals offer a range of benefits compared to other digital formats. PDF files are designed to retain their formatting regardless of the device used to open them. This ensures that the content appears exactly as intended by the author, with no loss of formatting or missing graphics. Additionally, PDF files can be easily annotated, bookmarked, and searched for specific terms, making them highly practical for studying or referencing. When it comes to accessing Metallurgy For The Non Metallurgist Second Edition books and manuals, several platforms offer an extensive collection of resources. One such platform is Project Gutenberg, a nonprofit organization that provides over 60,000 free eBooks. These books are primarily in the public domain, meaning they can be freely distributed and downloaded. Project Gutenberg offers a wide range of classic literature, making it an excellent resource for literature enthusiasts. Another

popular platform for Metallurgy For The Non Metallurgist Second Edition books and manuals is Open Library. Open Library is an initiative of the Internet Archive, a non-profit organization dedicated to digitizing cultural artifacts and making them accessible to the public. Open Library hosts millions of books, including both public domain works and contemporary titles. It also allows users to borrow digital copies of certain books for a limited period, similar to a library lending system. Additionally, many universities and educational institutions have their own digital libraries that provide free access to PDF books and manuals. These libraries often offer academic texts, research papers, and technical manuals, making them invaluable resources for students and researchers. Some notable examples include MIT OpenCourseWare, which offers free access to course materials from the Massachusetts Institute of Technology, and the Digital Public Library of America, which provides a vast collection of digitized books and historical documents. In conclusion, Metallurgy For The Non Metallurgist Second Edition books and manuals for download have transformed the way we access information. They provide a cost-effective and convenient means of acquiring knowledge, offering the ability to access a vast library of resources at our fingertips. With platforms like Project Gutenberg, Open Library, and various digital libraries offered by educational institutions, we have access to an ever-expanding collection of books and manuals. Whether for educational, professional, or personal purposes, these digital resources serve as valuable tools for continuous learning and self-improvement. So why not take advantage of the vast world of Metallurgy For The Non Metallurgist Second Edition books and manuals for download and embark on your journey of knowledge?

### **FAQs About Metallurgy For The Non Metallurgist Second Edition 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 web-based 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. Metallurgy For The Non Metallurgist Second Edition is one of the best book in our library for free trial. We provide copy of Metallurgy For The Non Metallurgist Second Edition in digital format, so the resources that you find are reliable. There are also many Ebooks of

related with Metallurgy For The Non Metallurgist Second Edition. Where to download Metallurgy For The Non Metallurgist Second Edition online for free? Are you looking for Metallurgy For The Non Metallurgist Second Edition PDF? This is definitely going to save you time and cash in something you should think about.

### **Find Metallurgy For The Non Metallurgist Second Edition :**

*greek and latin roots posters*

~~green apple educational products answers~~

grizzly 125 wiring diagram

great bend 220 loader manual

*great essays writing 4 third edition*

~~gross motor activities for sports theme~~

grilled chicken marinade recipe lime

~~group counseling jacobson 7th edition~~

grip covers for motorcycles

**gregorys service and repair manual victa no 220**

*grilled corned beef recipe*

**grd11 exam economic**

*grd12 mathematical literacy pprparatory examination september 2014 memo*

gre math 450 questions with answers

**gross motor development anecdotal observation**

### **Metallurgy For The Non Metallurgist Second Edition :**

**25 da c licieuses recettes de pizza volume 2 des pdf** - Dec 11 2021

25 da c licieuses recettes de pizza volume 2 des 5 5 recipes features dishes from around the world including traditional favorites and modern variations of jewish cuisine chienne de

**25 da c licieuses recettes de pizza volume 2 des** - Aug 31 2023

25 da c licieuses recettes de pizza volume 2 des 3 3 the latin american magical realism tradition foreword reviews black sugar comes out at a time when venezuela is in the news

**les recettes de pizza de a à z** - Mar 14 2022



2 2 25 da c licieuses recettes de pizza volume 2 des 2022 09 25 select and enjoy the perfect bottle from among the wines of the world includes such tips as secrets of buying

**25 da c licieuses recettes de pizza volume 2 des pdf 2023** - Oct 01 2023

such is the essence of the book 25 da c licieuses recettes de pizza volume 2 des pdf a literary masterpiece that delves deep to the significance of words and their affect our lives published

*les meilleures recettes de pizzas faciles à faire pour une soirée* - Jan 24 2023

25 da c licieuses recettes de pizza volume 2 des 3 3 familiar or exotic sounding all these enticing foods are easy to prepare with this delightful rewarding cookbook an american

*25 da c licieuses recettes de pizza volume 2 des 2023* - Dec 23 2022

aug 6 2023 25 da c licieuses recettes de pizza volume 2 des is available in our book collection an online access to it is set as public so you can get it instantly our book servers

**30 recettes de pizzas ultra réconfortantes sélection ca** - Sep 19 2022

jun 10 2023 25 da c licieuses recettes de pizza volume 2 des pdf eventually you will extremely discover a further experience and talent by spending more cash nevertheless

*25 da c licieuses recettes de pizza volume 1 des* - Jun 28 2023

25 da c licieuses recettes de pizza volume 1 des 3 3 the functioning of markets as the key organizing principle toward achieving sustained economic and social progress against this

*25 da c licieuses recettes de pizza volume 2 des 2022* - Jul 18 2022

2 2 25 da c licieuses recettes de pizza volume 2 des 2023 06 24 for excursions and shopping trips where to eat and where to stay all selected by true berliners journal officiel

*25 da c licieuses recettes de pizza volume 2 des* - Apr 26 2023

2 2 25 da c licieuses recettes de pizza volume 2 des 2022 10 18 black sugar is not to be missed portland review of books simply written miguel bonnefoy s story almost reads like a

**25 da c licieuses recettes de pizza volume 2 des 2022** - Apr 14 2022

mar 18 2022 les meilleures recettes de pizza avec de belles photos pour choisir une recette de pizza facile rapide originale et toujours délicieuse 10 pizza pour vous donner le choix

**top 30 des meilleures recettes de pizza marmiton** - Mar 26 2023

2 25 da c licieuses recettes de pizza volume 2 des 2023 06 28 traditional recipes in her mother s kitchen she was a firm believer in her mother s maxim no one must ever go away

**25 da c licieuses recettes de pizza volume 2 des** - May 28 2023

4 25 da c licieuses recettes de pizza volume 2 des 2023 01 22 toward a more price based allocation of resources  
strengthening monetary policy frameworks and financial sector

*25 da c licieuses recettes de pizza volume 2 des* - Feb 22 2023

les meilleures recettes de pizzas pâte à pizza sauce à pizza et ingrédients secrets des grands restaurants aller au contenu  
menu breuvages déjeuner À côtés accompagnements

13 idées de pizzas maison absolument délicieuses - Oct 21 2022

sep 22 2023 une recette de pizza maison toute garnie un classique dont on ne se lasse pas astuce pour recréer la texture  
craquante de la croûte à pizza cuite au four à bois utiliser une

**25 da c licieuses recettes de pizza volume 2 des pdf book** - Aug 19 2022

25 da c licieuses recettes de pizza volume 2 des 3 3 lakes that lie at the heart of the city and visits hidden courtyards and  
market squares the classic berlin of kurt weill s songs is

25 da c licieuses recettes de pizza volume 2 des - Feb 10 2022

2022 09 21 25 da c licieuses recettes de pizza volume 2 des 7 need for good jewish cooking are good ingredients and plenty  
of them whether familiar or exotic sounding all

25 da c licieuses recettes de pizza volume 2 des full pdf - Jul 30 2023

transformed by the super soldier serum from a 97 pound weakling into the star spangled avenger steve rogers led the charge  
to liberate the world from the axis powers grasp but

*25 da c licieuses recettes de pizza volume 2 des* - Jun 16 2022

25 da c licieuses recettes de pizza volume 2 des pdf yeah reviewing a book 25 da c licieuses recettes de pizza volume 2 des  
pdf could increase your near links listings this

**25 da c licieuses recettes de pizza volume 2 des pdf 2023** - May 16 2022

period for their favorite books following this 25 da c licieuses recettes de pizza volume 2 des but stop taking place in harmful  
downloads rather than enjoying a fine pdf later a cup

*25 da c licieuses recettes de pizza volume 2 des* - Jan 12 2022

2 2 25 da c licieuses recettes de pizza volume 2 des 2023 08 26 they in the first intellectual history of neoliberal globalism  
quinn slobodian follows a group of thinkers from

*25 da c licieuses recettes de pizza volume 2 des* - Nov 09 2021

*25 da c licieuses recettes de pizza volume 2 des 2023* - Nov 21 2022

may 14 2021 13 idées de pizzas maison absolument délicieuses list 14 mai 2021 que vous mangiez seul ou en famille

savourer une pizza est toujours un bon choix préparez ces 13

**tensors differential forms and variational principles open** - May 28 2022

web jan 14 2023 imported from scriblio marc record tensors differential forms and variational principles by david lovelock 1989 dover edition in english

**tensors and differential forms researchgate** - Feb 22 2022

web may 27 2000 download citation tensors and differential forms introduction the purpose of these notes is to give a quick course on tensors in general differentiable manifolds as a complement to standard

*tensors differential forms and variational principles* - Aug 11 2023

web 1989 topics calculus of tensors differential forms calculus of variations publisher new york dover collection inlibrary printdisabled internetarchivebooks contributor internet archive

**tensors differential forms and variational principles dover** - Apr 07 2023

web apr 1 1989 buy tensors differential forms and variational principles dover books on mathematics on amazon com free shipping on qualified orders tensors differential forms and variational principles dover books on mathematics lovelock david rund hanno 0800759658404 amazon com books

tensors differential forms and variational principles - Jun 28 2022

web tensors differential forms and variational principles 1 preliminary observations one of the principal advantages of classical vector analysis derives from the fact that it enables one to express geometrical or physical relationships in a concise manner which does not depend on the introduction of a coordinate system

*tensors differential forms and variational principles pdf* - Sep 12 2023

web e book overview incisive self contained account of tensor analysis and the calculus of exterior differential forms interaction between the concept of invariance and the calculus of variations emphasis is on analytical techniques with large number of problems from routine manipulative exercises to technically difficult assignments

**tensors differential forms and variational principles apple** - Dec 03 2022

web the aim of this book is to present a self contained reasonably modern account of tensor analysis and the calculus of exterior differential forms adapted to the needs of physicists engineers and applied mathematicians

*tensors differential forms and variational principles* - Jun 09 2023

web apr 20 2012 courier corporation apr 20 2012 mathematics 400 pages the aim of this book is to present a self contained reasonably modern account of tensor analysis and the calculus of exterior

*tensors and differential forms lecture 2 university of* - Aug 31 2022

web the concept of a tensor is derived from considering the properties of a function under a transformation of the coordinate

system a description of a physical process cannot depend on the coordinate orientation or origin and this principle can be expanded to look for other mathematical symmetries

**tensors differential forms and variational principles** - Nov 02 2022

web apr 1 1989 the authors present a thorough development of tensor calculus from basic principals such as ordinary three dimensional vector space tensors are generalizations of vectors to any number of dimensions vectors are type 1 0 tensors diff forms are type 0 1 tensors

tensors differential forms and variational principles - Jul 10 2023

web david lovelock hanno rund dover publications apr 1 1989 mathematics 400 pages the aim of this book is to present a self contained reasonably modern account of tensor analysis and the

**tensors differential forms and variational principles** □□ - Mar 26 2022

web incisive self contained account of tensor analysis and the calculus of exterior differential forms interaction between the concept of invariance and the calculus of variations emphasis is on analytical techniques with large number of problems from routine manipulative exercises to technically difficult assignments

**notes on differential forms part 3 tensors** - Oct 01 2022

web what is a tensor let  $V$  be a finite dimensional vector space 1 it could be  $\mathbb{R}^n$  it could be the tangent space to a manifold at a point or it could just be an abstract vector space a  $k$  tensor is a map  $T: V \times \dots \times V \rightarrow \mathbb{R}$  where there are  $k$  factors of  $V$  that is linear in each factor 2 that is for  $x \in V$   $v_2 \dots v_k$

*tensors differential forms and variational principles scribd* - Mar 06 2023

web tensors differential forms and variational principles david lovelock and hanno rund the aim of this book is to present a self contained reasonably modern account of tensor analysis and the calculus of exterior differential forms adapted to the needs of physicists engineers and applied mathematicians

tensors differential forms and variational principles scribd - Feb 05 2023

web apr 20 2012 read tensors differential forms and variational principles by david lovelock hanno rund with a free trial read millions of ebooks and audiobooks on the web ipad iphone and android the aim of this book is to present a self contained reasonably modern account of tensor analysis and the calculus of exterior differential forms

tensors differential forms and variational principles apple - Apr 26 2022

web the aim of this book is to present a self contained reasonably modern account of tensor analysis and the calculus of exterior differential forms adapted to the needs of physicists engineers and applied mathematicians

**tensors differential forms and variational principles dover** - May 08 2023

web apr 1 1989 description the aim of this book is to present a self contained reasonably modern account of tensor analysis

and the calculus of exterior differential forms adapted to the needs of physicists engineers and applied mathematicians  
*pdf tensors differential forms and variational principles* - Jul 30 2022

web mar 31 2023 this is free download book tensors differential forms and variational principles dover books on mathematics by author david lovelock in pdf epub original title isbn 9780486658407 and asin 0486658406 published on april 1 1975 in edition language english

tensors differential forms and variational principles - Jan 04 2023

web incisive self contained account of tensor analysis and the calculus of exterior differential forms interaction between the concept of invariance and the calculus of variations emphasis is on analytical techniques with large number of problems from routine manipulative exercises to technically difficult assignments

tensors differential forms and variational principles - Jan 24 2022

web beginning with simple physical examples the theory of tensors and forms is developed by a process of successive abstractions this enables the reader to infer generalized principles from concrete situations departing from the traditional approach to tensors and forms in terms of purely differential geometric concepts

paper sat practice tests sat suite college board - Jan 08 2023

web prefer to take a pencil and paper practice test your school might have paper practice tests or you can download and print the paper practice tests available below you ll need a printer pencil calculator and timer to take the tests

*past papers cambridge assessment international education* - Apr 11 2023

web cambridge igcse cambridge o level cambridge international as a levels select your subject and find past papers and specimen papers in the left hand side bar other resources you may find useful test maker

**free online ielts practice sample tests take ielts** - Jul 02 2022

web on this page you ll find a number of ielts sample tests to help you practice your timing and technique before you sit your official ielts test why should i practice we strongly recommend you make use of these practice tests as part of your preparation

sample test questions ielts - Sep 04 2022

web ielts official practice test once you have prepared with the sample questions put your knowledge to the test with ielts progress check an official ielts online marked practice test the test will give you an indication of your band score and provide feedback on areas to improve book your official practice test today listening academic reading

downloadable full length sat practice tests sat suite - Jul 14 2023

web download eight official sat practice tests for free for practice on the digital sat explore full length linear nonadaptive practice tests and full length practice tests on bluebook paper practice tests download print and score paper practice tests to

prepare for test day practice tests for assistive technology

**past papers papers a levels english general paper as** - Oct 05 2022

web aug 13 2023 past papers of papers a levels english general paper as level only 8021 2022 cambridge o levels cambridge igcse cambridge int l as a levels caie october november 2023 session starts 22 days

*official examination papers rcm shop canada* - Aug 03 2022

web 2019 official examination papers piano pedagogy written regular price 48 95 2019 official examination papers complete set regular price 307 40 sale price 245 92 2020 official examination papers level 5 theory regular price 18 95 2020 official examination papers level 7 theory

*cbse central board of secondary education* - Apr 30 2022

web question paper for class xii compartment examination 2021 subject name download file type file size accountancy download 4 84 mb biology

previous year question papers upsc - Mar 30 2022

web previous year question papers search exam name apply year 2021 indian forest service main examination 2021

agriculture paper i agriculture paper ii agricultural engineering paper i

official examination papers from university of cambridge esol examinations - Dec 07 2022

web cambridge key english test extra includes four ket past papers from cambridge esol each of the four each of the four tests includes a reading and writing test a listening test and a speaking test

*exam preparation cambridge english* - Mar 10 2023

web exam preparation to help you prepare for your exam we have produced free materials such as sample papers worksheets vocabulary lists and exam guides for you to download from our website

**official clat 2022 question paper byju s exam prep** - Dec 27 2021

web sep 11 2023 clat 2022 question paper the candidates must solve year wise clat previous year paper to get valuable insight into the exam clat 2022 question paper helps the candidates to understand the latest clat syllabus pattern important chapters and topics as per the latest update clat 2022 question paper consisted of 5 sections

**all sat papers allsatpapers** - May 12 2023

web the most comprehensive collections of sat ap psat ssat toefl real official unreleased exam papers with full length content and answer keys

**2022 official examination papers rcm shop us international** - Jan 28 2022

web 2022 official examination papers level 10 harmony counterpoint ebook regular price us 18 95 2022 official examination papers arct harmony counterpoint ebook

**official examination papers from university of cambridge esol examinations** - Feb 09 2023

web cambridge esol examinations certificate in advanced english cae examination students can practise these tests on their own or with the help of a teacher the cae examination is part of a suite of general english examinations produced by cambridge esol this suite consists of five examinations that have similar characteristics but

*complete official act practice tests free links prepscholar* - Jun 01 2022

web there is currently one full length official act available for free online in two formats one format is a printable practice act that you can download print and take with pencil and paper since you ll be taking the actual act with pencil and paper we recommend taking this version of the practice exam to get the most realistic testing

*past papers past exam papers pearson qualifications* - Aug 15 2023

web our easy to use past paper search gives you instant access to a large library of past exam papers and mark schemes they re available free to teachers and students although only teachers can access the most recent papers sat within the past 12 months

*cbse central board of secondary education* - Feb 26 2022

web class xii sample question paper marking scheme for exam 2016 17 class x cbse academic class x sample question paper marking scheme for exam 2016 17 sample question paper 2015 16 class xii cbse academic class xii sample question paper marking scheme for exam 2015 16 class x

**cambridge first certificate in english 2 for updated exam official** - Nov 06 2022

web oct 26 2021 cambridge first certificate in english 2 for updated exam official examination papers from university of cambridge esol examinations self study pack free download borrow and streaming internet archive

**sample exams acibadem Üniversitesi acibadem edu tr** - Jun 13 2023

web sample exams eaquals about university university catalog tour sample proficiency exam 2019 accept note taking accept while listening sample proficiency 2019 key