

OXFORD

ATKINS'
PHYSICAL
CHEMISTRY

twelfth edition

PETER ATKINS | JULIO DE PAULA | JAMES KEELER



Enhanced E-book

Atkins Inorganic Chemistry 5 Solution Manual

Sabine Zange



Atkins Inorganic Chemistry 5 Solution Manual:

Reviewing **Atkins Inorganic Chemistry 5 Solution Manual**: Unlocking the Spellbinding Force of Linguistics

In a fast-paced world fueled by information and interconnectivity, the spellbinding force of linguistics has acquired newfound prominence. Its capacity to evoke emotions, stimulate contemplation, and stimulate metamorphosis is truly astonishing. Within the pages of "**Atkins Inorganic Chemistry 5 Solution Manual**," an enthralling opus penned by a highly acclaimed wordsmith, readers embark on an immersive expedition to unravel the intricate significance of language and its indelible imprint on our lives. Throughout this assessment, we shall delve into the book's central motifs, appraise its distinctive narrative style, and gauge its overarching influence on the minds of its readers.

<https://stats.tinkerine.com/files/book-search/fetch.php/Bunny%20Yeagers%20Darkroom%20Pin%20Up%20Photographys%20Golden%20Era.pdf>

Table of Contents Atkins Inorganic Chemistry 5 Solution Manual

1. Understanding the eBook Atkins Inorganic Chemistry 5 Solution Manual
 - The Rise of Digital Reading Atkins Inorganic Chemistry 5 Solution Manual
 - Advantages of eBooks Over Traditional Books
2. Identifying Atkins Inorganic Chemistry 5 Solution Manual
 - 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 Atkins Inorganic Chemistry 5 Solution Manual
 - User-Friendly Interface
4. Exploring eBook Recommendations from Atkins Inorganic Chemistry 5 Solution Manual
 - Personalized Recommendations
 - Atkins Inorganic Chemistry 5 Solution Manual User Reviews and Ratings

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

Atkins Inorganic Chemistry 5 Solution Manual Introduction

Atkins Inorganic Chemistry 5 Solution Manual Offers over 60,000 free eBooks, including many classics that are in the public domain. Open Library: Provides access to over 1 million free eBooks, including classic literature and contemporary works. Atkins Inorganic Chemistry 5 Solution Manual Offers a vast collection of books, some of which are available for free as PDF downloads, particularly older books in the public domain. Atkins Inorganic Chemistry 5 Solution Manual : This website hosts a vast collection of scientific articles, books, and textbooks. While it operates in a legal gray area due to copyright issues, its a popular resource for finding various publications. Internet Archive for Atkins Inorganic Chemistry 5 Solution Manual : Has an extensive collection of digital content, including books, articles, videos, and more. It has a massive library of free downloadable books. Free-eBooks Atkins Inorganic Chemistry 5 Solution Manual Offers a diverse range of free eBooks across various genres. Atkins Inorganic Chemistry 5 Solution Manual Focuses mainly on educational books, textbooks, and business books. It offers free PDF downloads for educational purposes. Atkins Inorganic Chemistry 5 Solution Manual Provides a large selection of free eBooks in different genres, which are available for download in various formats, including PDF. Finding specific Atkins Inorganic Chemistry 5 Solution Manual, especially related to Atkins Inorganic Chemistry 5 Solution Manual, might be challenging as theyre often artistic creations rather than practical blueprints. However, you can explore the following steps to search for or create your own Online Searches: Look for websites, forums, or blogs dedicated to Atkins Inorganic Chemistry 5 Solution Manual, Sometimes enthusiasts share their designs or concepts in PDF format. Books and Magazines Some Atkins Inorganic Chemistry 5 Solution Manual books or magazines might include. Look for these in online stores or libraries. Remember that while Atkins Inorganic Chemistry 5 Solution Manual, sharing copyrighted material without permission is not legal. Always ensure youre either creating your own or obtaining them from legitimate sources that allow sharing and downloading. Library Check if your local library offers eBook lending services. Many libraries have digital catalogs where you can borrow Atkins Inorganic Chemistry 5 Solution Manual eBooks for free, including popular titles. Online Retailers: Websites like Amazon, Google Books, or Apple Books often sell eBooks. Sometimes, authors or publishers offer promotions or free periods for certain books. Authors Website Occasionally, authors provide excerpts or short stories for free

on their websites. While this might not be the Atkins Inorganic Chemistry 5 Solution Manual full book, it can give you a taste of the authors writing style. Subscription Services Platforms like Kindle Unlimited or Scribd offer subscription-based access to a wide range of Atkins Inorganic Chemistry 5 Solution Manual eBooks, including some popular titles.

FAQs About Atkins Inorganic Chemistry 5 Solution Manual 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. Atkins Inorganic Chemistry 5 Solution Manual is one of the best book in our library for free trial. We provide copy of Atkins Inorganic Chemistry 5 Solution Manual in digital format, so the resources that you find are reliable. There are also many Ebooks of related with Atkins Inorganic Chemistry 5 Solution Manual. Where to download Atkins Inorganic Chemistry 5 Solution Manual online for free? Are you looking for Atkins Inorganic Chemistry 5 Solution Manual PDF? This is definitely going to save you time and cash in something you should think about.

Find Atkins Inorganic Chemistry 5 Solution Manual :

bunny yeagers darkroom pin up photographys golden era

business by the book larry burkett

bundle biochemistry 5th study guide with student solutions manual and problems book

burgen und schlsser in den bhmischen lndern

burning down the house essays on fiction

bulletproof android

business advice artist eclecticica 1

bull's eye trivia hundreds of fun facts trivia that hits the mark

burgman 650 exec manual

business dynamics: systems thinking and modeling for a complex world

business algebra kelly macarthur edition 2

buitenlandse getuigen van onze koloniale expansie patria xx

business coaching manual

business communication essentials second canadian edition with mycanadianbuscommlab 2nd edition

bush manuals online

Atkins Inorganic Chemistry 5 Solution Manual :

automotive science and mathematics bonnick allan w m free - Jun 18 2023

web automotive science and mathematics presents the necessary principles and applications with all the examples and exercises relating directly to motor vehicle technology and repair making it easy for automotive students and apprentices to relate the theory back to their working practice

automotive science and mathematics google play - Apr 16 2023

web automotive science and mathematics ebook written by allan bonnick read this book using google play books app on your pc android ios devices download for offline reading highlight bookmark or take notes while you

automotive science and mathematics cyberlab sutd edu sg - Aug 08 2022

web automotive science and mathematics designing professional development for teachers of science and mathematics jan 30 2022 the indispensable resource for inservice training of math and science teachers

automotive science and mathematics allan bonnick taylor - Sep 21 2023

web jan 28 2008 automotive science and mathematics presents the necessary principles and applications with all the examples and exercises relating directly to motor vehicle technology and repair making it easy for automotive students and apprentices to relate the theory back to their working practice

automotive science mathematics geu motorsports - May 05 2022

web we would like to show you a description here but the site won't allow us

automotive science and mathematics amazon com - May 17 2023

web mar 24 2008 automotive science and mathematics presents the necessary principles and applications with all the examples and exercises relating directly to motor vehicle technology and repair making it easy for automotive students and apprentices to relate the theory back to their working practice

[automotive science and mathematics on apple books](#) - Nov 11 2022

web automotive science and mathematics presents the necessary principles and applications with all the examples and exercises relating directly to motor vehicle technology and repair making it easy for automotive students and apprentices to relate the theory back to their working practice

automotive science and mathematics semantic scholar - Sep 09 2022

web system level modelling analysis and validation of a soccer robot s shooting mechanism 2023 international conference on this paper presents a modelling framework for the shooting system of the tech united soccer robot involved in robocup

automotive science and mathematics mechanical engineering - Apr 04 2022

web jan 6 2020 2 statistics an introduction 3 algebra and graphs geometry and trigonometry 5 forces 6 materials stress strain elasticity 7 levers and moments torque and gears 8 work energy power and machines 9 friction 10

[pdf mathematics in the automotive industry researchgate](#) - Jun 06 2022

web jan 1 1992 edited by james r smith the first of its kind in the uk the ima conference on mathematics in the automotive industry was intended to expose typical theoretical problems in this industry and the

automotive science and mathematics allan bonnick - Jul 07 2022

web automotive science and mathematics has been written to meet the needs of students on apprenticeship programmes city and guilds automotive science and courses ordinary and higher national certificate and diploma courses as well as foundation degree courses in automotive engineering it clearly

[free automotive science and mathematics english editio](#) - Mar 15 2023

web automotive science and mathematics english editio what is mathematics aug 11 2023 the teaching and learning of mathematics has degenerated into the realm of rote memorization the outcome of which leads to satisfactory formal ability but not real understanding or greater intellectual independence the new edition of this classic work

automotive science and mathematics 1st edition routledge - Oct 22 2023

web automotive science and mathematics presents the necessary principles and applications with all the examples and exercises relating directly to motor vehicle technology and repair making it easy for automotive students and apprentices to relate the theory back to their working practice

automotive science and mathematics open library - Feb 14 2023

web mar 2 2008 automotive science and mathematics by allan bonnick march 2 2008 butterworth heinemann edition paperback in english

automotive science and mathematics allan bonnick google - Aug 20 2023

web automotive science and mathematics presents the necessary principles and applications with all the examples and

exercises relating directly to motor vehicle technology and repair making it easy

automotive science and mathematics amazon co uk - Jan 13 2023

web automotive science and mathematics presents the necessary principles and applications with all the examples and exercises relating directly to motor vehicle technology and repair making it easy for automotive students and apprentices to relate the theory back to their working practice

automotive science and mathematics bonnick allan - Oct 10 2022

web hello sign in account lists returns orders cart

automotive science and mathematics hardcover abebooks - Dec 12 2022

web automotive science and mathematics presents the necessary principles and applications with all the examples and exercises relating directly to motor vehicle technology and repair making it easy for automotive students and apprentices to relate the theory back to their working practice

pdf automotive science mathematics academia edu - Mar 03 2022

web an lt br gt automotive example is considered whereby the pulsating exhausts gas flow through an exhaust pipe lt br gt and silencer are considered over a wide range of speeds analytical procedures are outlined lt br gt enabling the general analysis and modelling of vehicle engine exhaust gas systems also in this lt br gt paper presents the

automotive science and mathematics innovationdiscoveries space - Jul 19 2023

web automotive science and mathematics this page intentionally left blank automotive science and mathematics allan bonnick 4 2 examples of angles in automotive work 42 angles and lines 43 adding and subtracting angles 43 4 3 types of angle 44 adjacent angles 44 opposite angles 44

İstanbul university İstanbul faculty of medicine - Mar 31 2022

web internal medical sciences 1 department of forensic medicine 2 department of family medicine 3 department of child health and diseases 4 department of child and adolescent mental health and diseases 5 department of skin and venereal diseases 6 department of physical medicine and rehabilitation

oxford university press online resource centre multiple - Feb 10 2023

web about the book find out more read a sample chapter or order an inspection copy if you are a lecturer from the higher education website

study for the usmle step 2 ck amboss - Jun 02 2022

web with over 3150 step 2 ck questions and corresponding articles that encompass neurology surgery internal medicine and other high yield topics amboss is the final puzzle piece missing from your step 2 ck study plan get a free trial or try our 30 day study plan

internal medicine 1000 mcqs single best answer medical - Jul 15 2023

web oct 13 2020 internal medicine 1000 mcqs single best answer by uzma nasim siddiqui pdf is one of the best book for quick review of medicine it is very good book to study a day before your exam it can also cover your viva questions and will help you to score very high features of internal medicine 1000 mcqs single best answer by

best internal medicine question bank nejm knowledge - Aug 16 2023

web mar 23 2023 sign up for nejm knowledge question of the week to get free internal medicine board review questions 7 reasons why internal medicine question banks enhance learning and recall 1 the

İstanbul university İstanbul faculty of medicine - Dec 28 2021

web internal medical sciences surgical medical sciences contact search english türkçe yönetim dekanlık yönetim kurulu fakülte kurulu fakülte senatörü dekan yrd temel tıp bilimleri bölümü prof dr ayŞın kale dekan yrd

board review nejm knowledge - Nov 07 2022

web an effective adaptive and personalized learning experience packed with clinically relevant rigorously edited gold standard content nejm knowledge board review products are the most comprehensive adaptive learning online question banks available nejm knowledge is the most efficient engaging and effective ways to enhance your patient *mcqs and self assessment based on harrison s internal medicine* - Oct 06 2022

web jan 15 2013 study of this self assessment and review book should help to 1 identify areas of relative weakness 2 confirm areas of expertise 3 assess knowledge of the sciences fundamental to internal medicine 4 assess clinical judgment and problem solving skills and 5 introduce recent developments in general internal medicine

internal medicine boards question bank medquest - Feb 27 2022

web practice makes perfect with 1 000 board style q a it s not enough to know the content practicing with questions gives you a competitive edge and makes sure you feel confident when taking the american board of internal medicine abim examination internal medicine in training exam im ite and longitudinal knowledge assessment

internal medicine board review questions 2023 boardvitals - Jan 09 2023

web the internal medicine question bank follows the exam content outline for both internal medicine certification exams from the american board of internal medicine abim and the american osteopathic board of internal medicine aobim

medical mcq bank 2 000 free mcq clinical owl internal medicine - May 01 2022

web free medical asked bank containing 2 000 medizinisches mcq with answers and explanation suitable on medical nursing pharmacy and pa students

download mcqs in internal medicine 5th edition pdf free - Jun 14 2023

web download mcqs in internal medicine 5th edition pdf free an indispensable revision tool in medicine specially for

undergraduate students total 2290 systematically arranged questions single choice answers given at the bottom of each page book covers all major aspects of internal medicine

medicine question bank mcqs medicine questions and answers - Jan 29 2022

web regular updates in medicine question bank for neet pg aiims pg mbbs exams internals mcqs important points and questions discussed first free medical social network

17 free medical school question banks save money level up - Sep 05 2022

web summary best free medical school question banks medical school question banks are fundamental to helping you master concepts and score well in both internal school and important board exams the list above should hopefully keep you busy

medical student finals question bank mcqs sbaqs exam - Aug 04 2022

web nov 6 2019 the geeky medics medical finals question bank contains over 2000 single best answer sba questions covering topics relevant to medical school finals each question has been reviewed by doctors to ensure they deliver excellent educational value

internal medicine mcqs with answers medicine question bank - Jul 03 2022

web internal medicine mcqs with answers medicine question bank mcqs question answers september 2023

free internal medicine board review questions nejm knowledge - May 13 2023

web nov 6 2014 nejm knowledge question of the week provides a worthy challenge to test your core knowledge of internal medicine topics drawing from our question bank of thousands of case based questions

mayo clinic internal medicine board review questions and - Dec 08 2022

web mayo clinic internal medicine board review questions and answers is designed specifically to help prepare physicians in training and practising clinicians for the abim certification and maintenance of certification examinations in internal medicine

mksap 19 login page acp - Apr 12 2023

web log in to mksap 19 online mksap is the premier complete learning system and question bank for the broad specialty of internal medicine

internal medicine clerkship multiple choice quiz questions - Mar 11 2023

web jun 25 2009 this resource is a question bank of 380 multiple choice questions designed for use during an internal medicine clerkship the questions are designed for open book use to reinforce a recommended reading schedule during our 12 week internal medicine clerkship at the university of louisville school of medicine since the questions are used

fetal pig dissection carolina biological supply - Apr 04 2022

web teats determine the pig s gender a female will have a urogenital opening and labia these structures come together

beneath the anus to form a small projection called the genital papilla a male pig will possess a urogenital opening for
teacher s guide for fetal pig dissection the biology corner - Oct 10 2022

web 1 do you have space with a sink pigs are a lot more involved than frogs and the preservatives will need to be drained and pigs rinsed this is not a good dissection for classrooms that do not have sinks 2 have your students completed the frog dissection

fetal pig dissection lab biology ii laboratory manual lumen - Feb 14 2023

web question is the trachea in front of or behind the esophagus cut into the thoracic cavity beneath the rib cage make sure you can locate the following structures heart lungs bronchi

reading fetal pig dissection biology ii laboratory manual - Feb 02 2022

web figure 1 female injection site nipples umbilical cord figure 2 female genital papilla urogenital opening anus figure 3 male scrotum figure 4 male urogenital opening penis anus preparation and initial cuts tie one front leg of the animal with a string that passes underneath the dissecting pan to the other leg

fetal pig dissection and fetal pig anatomy biology junction - Jun 06 2022

web pre lab before observing internal or external structures of the fetal pig use your dissection manual textbook and dissection notebook to answer the pre lab questions on the fetal pig you may have to refer to more than one dissection manual to answer all the questions so trade and share with other dissection groups

fetal pig dissection and lab guide the biology corner - Jun 18 2023

web 1 determine the sex of your pig by looking for the urogenital opening on females this opening is located near the anus on males the opening is located near the umbilical cord if your pig is female you should also note that urogenital papilla is present near the genital opening males do not have urogenital papilla

fetal pig dissection resources startsateight - Jan 13 2023

web feb 27 2017 human pig comparisons one of the main reasons to dissect a fetal pig is the similarities to the human anatomy here is a breakdown of the similarities 7 quizlet quizzes 8 free printable fetal pig dissection guide this is a full guide to dissection including labeled diagrams

fetal pig dissection lesson plan study com - Jul 07 2022

web fetal pig dissection lesson plan instructor adrienne baron adrienne has a master s degree in cancer biology and has taught high school and college biology cite this lesson fetal pigs are one

10 1 fetal pig dissection lab biology libretexts - Apr 16 2023

web identify structures on the pig and know their functions identify structures that are a part of the digestive system respiratory system circulatory system reproductive system and excretory system compare pig anatomy to human anatomy

fetal pig dissection from lumen learning download a pdf of the lab to print

[fetal pig dissection texas a m school of veterinary medicine](#) - Nov 11 2022

web fetal pig dissection what do you think humans have in common with the pig ferrebeekeeper files wordpress com 2014 03

farmer clip art 4 gif clipartpanda com categories pig in mud cartoon humans and pigs may be closer than you think

teaching resources fetal pig dissection the biology corner - Sep 09 2022

web apr 10 2016 in anatomy worksheets by shannan muskopf anatomy biology diagrams dissection fetal guide instructions

pig laboratory guide for the fetal pig dissection includes instructions and diagrams for students students answer questions and

fetal pig dissection manual answer booklet city university of - Mar 15 2023

web cuny queens college general biology fetal pig dissection answer booklet daniel j yakubov edited by dr nathalia g

holtzman this work is licensed under a creative commons attribution noncommercial 4 0 international license day 1 fetal pig

anatomy i external features oral cavity pharynx and digestive system

[fetalpigdissectionholtbiologyanswers](#) - Mar 03 2022

web this fetal pig dissection holt biology answers can be taken as competently as picked to act mitosis cytokinesis arthur

zimmerman 2012 12 02 mitosis cytokinesis provides a comprehensive discussion of the various aspects of mitosis and

cytokinesis as studied from different points of view by various authors

lab 8 11 fetal pig dissection biology libretexts - Oct 22 2023

web the size of the testes varies significantly depending on the age of the fetal pig female in the female pig locate two bean

shaped ovaries located just posterior to the kidneys and connected to the curly oviducts these typically are quite small in the

fetal pig trace the oviducts toward the posterior to find that they merge at the uterus

[13 1 3 reading fetal pig dissection biology libretexts](#) - May 17 2023

web obtain a fetal pig and identify the structures listed in figure 1 use figures 1 4 below to identify its sex use your pig and

also a pig of the opposite sex to identify the structures in the photographs below the word urogenital refers to an opening

that serves both the urinary excretory and the reproductive systems figure 1

fetal pig dissection virtual anatomy diagrams hst - Dec 12 2022

web 1 most of the pig s external features are familiar to you ears nose eyes etc on the belly you will see the umbilical cord

which connected the fetal pig to its mother s placenta on either side of the umbilical cord you may see mammary papillae

little nipples that will turn into teats in female pigs 2

the ultimate fetal pig dissection review the biology corner - Sep 21 2023

web are you ready for the lab practical i have completed the virtual pig dissection i have checked the the boxes on the lab

guide and have found each of the organs structures listed i can spell all of the words on the lab guide i know the functions of each i have looked at each of the galleries and can identify structures on the pictures

fetal pig dissection key by biologycorner tpt - Aug 08 2022

web this is the answer key to the free worksheet available at biologycorner com worksheets fetal pig dissection html the dissection guide was revised june 2019 and some of the questions have been shuffled and new ones added

12 1 1 fetal pig dissection lab biology libretexts - Jan 01 2022

web learn about the anatomy of the pig as an example of a vertebrate mammal identify structures on the pig and know their functions identify structures that are a part of the digestive system respiratory system circulatory system reproductive system and excretory system compare pig anatomy to human anatomy

fetal pig dissection biology libretexts - Aug 20 2023

web fetal pig dissection of the lower arteries trace the abdominal aorta also called the dorsal aorta to the lower part of the body careful tweezing of the tissue will reveal several places where it branches though some of the arteries may have been cut when you removed organs of the digestive system

solved X biology 9 name part 2 fetal pig dissection - May 05 2022

web X biology 9 name part 2 fetal pig dissection label the following diagram this problem has been solved you ll get a detailed solution from a subject matter expert that helps you learn core concepts

chapter 11 fetal pig dissection uh pressbooks - Jul 19 2023

web learn more main body fetal pig dissection learning objectives identify external urogenital structures of the male and female fetal pig successfully complete dissection of the fetal pig identify on your fetal pig each structure from the labeled photographs introduction several different pig dissections were used to obtain the photographs below