

20110914 CHACR Corrections advice to instructors

in regard to "CHEMISTRY: HUMAN ACTIVITY, CHEMICAL REACTIVITY" by Mahaffy, Bucat and Tasker et al

Inside back cover. In the Atomic Weights of the Elements chart, Cesium is not correctly placed alphabetically: In this list, *Cesium* (and corresponding data) should be dropped four places so that it appears after *Cerium*.

Page 43, 6 lines from bottom: Insert space in word "dioctylphthalate" to form two words "dioctyl phthalate"

Page 48, Figure 3.5, column 2, 4th entry: Entry should read "iron(III) oxide" - and not "iorn(III) oxide".

Page 49. Second displayed equation (immediately above Figure 3.6): "F⁺ anion" should be changed to "F⁻ anion".

Page 60, para 4, second sentence beginning "This measurement gives rise to": Change to "This measurement does not allow us to decide between the possibilities that the substance is carbon monoxide (CO) or nitrogen (N₂)."

Page 60, Table 3.4: Include one more line of data at bottom, column-by-column as follows:

bromine ⁷⁹ Br	50.69%	78.918336	⁸¹ Br	49.31%	80.916290
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Page 63, second line of text below the figure: Numbers "2" and "6" in the formula should be subscripts. ie, Change "C2H6O" to "C₂H₆O"

Page 67, Figure 3.20, symbol in first box: Change "g rays" to "γ-rays". [γ is the symbol for Greek letter gamma in lower case]

Page 70, Figure 3.24 (a) and (b): Above both spectra (a) and (b), caption should read "Wavelength (μm)". [μ is the symbol for Greek letter mu in lower case]

Page 84: The first chemical equation on line 4 of the section "Methane Fuelling Human Activity": Insert "2" in front of "H₂O(g)" on the right side

ie $\text{CH}_4(\text{g}) + 2 \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2 \text{H}_2\text{O}(\text{g})$

Page 90, Figure 4.8: The second label at the bottom of the figure should read "infrared light" (not "inflared light")

Page 92, Worked Example 4.2, Solution: Second sentence "O₂, in turn, is converted back to O₃." should read "O₃, in turn, is converted back to O₂."

Page 97, para 3, second line from bottom: "Section 16.1" should read "Section 15.1".

Page 99, caption to margin figure: Delete "β-". To read "A glucose molecule"

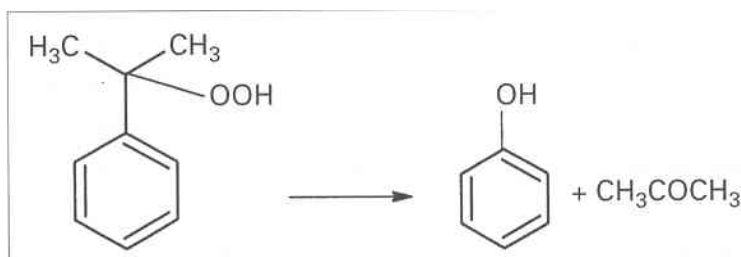
Page 100, line 5 of Section 4.5: Change "propane (C₃H₆)" to read "propane (C₃H₈)".

Page 101, line 16: Change word "compound" to "tower". To read "At the top of a distillation tower, a gaseous fraction"

Page 110, Question 4.24: Change "What is the radiative forcing effect of increased levels of stratospheric ozone?" to read "What is the radiative forcing effect of decreased levels of stratospheric ozone?"

Page 112, Exercise 4.42: From the artwork, the monomer (Vinyl chloride) and the arrow to be deleted.

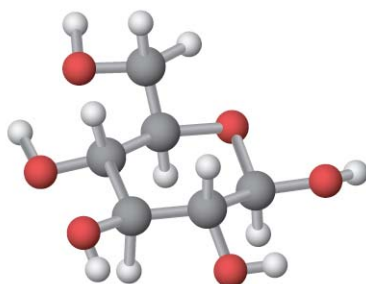
Page 134, Worked Example 5.7, part (b) should read: "Compare your answers with those for a current process for phenol manufacture, the last step of which is decomposition of cumene hydroperoxide to phenol and acetone. Acetone is a valuable product, rather than a waste."



Page 138, Exercise 5.35: Change “Cu₂S(g)” to “Cu₂S(s)” on two occasions, to read as follows:

Sulfuric acid can be prepared starting with the sulfide ore, cuprite (Cu₂S). If each S atom in Cu₂S(s) leads to one molecule of H₂SO₄, what mass of H₂SO₄(l) can be produced from 1.00 tonne of Cu₂S(s)?

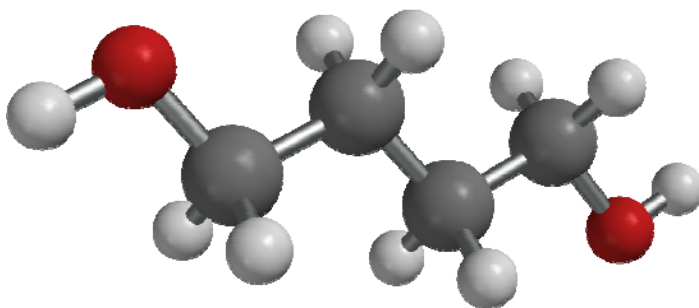
Page.168, Figure 6.31: This diagram is stereochemically incorrect. Replace the structure of a glucose molecule with the following:



Page 169, last para before Worked Example 6.8: Replace this para by:

“We can also rationalize in this way the solubilities of alcohols with the same-sized hydrocarbon portion but different numbers of –OH groups: although butan-1-ol and butan-2-ol have limited solubilities in water, both butane-1,2-diol and butane-1,4-diol are fully miscible with water.”

The adjacent margin figure should be replaced by the onefollowing:



The caption to this figure should be changed from “Propan-1,2-diol” to “Butane-1,4-diol”.

Page 169, Worked Example 6.8: On four occasions, the name “butan-1,4-diol” should read “butane-1,4-diol”

Page 169, Exercise 6.31: Change “butan-1,4-diol” to “butane-1,4-diol”

Page 174, Figure 6.36, caption under third box of the figure: Change “Blue color due to Cu²⁺ ions formed in redox reaction” to “Blue color due to Cu²⁺(aq) ions formed by oxidation”

Page 177, Figure 6.38, caption for box (c):

Change “hydrochloric acid” to “HCl solution”

Change “zinc chloride” to “aquated zinc ions”.

To read “(c) Zinc reacts with **HCl solution** to produce **aquated zinc ions** and hydrogen gas.”

Page 178, unnumbered margin figure alongside Table 6.13: In label at bottom “CH₃COOH”, make ‘3’ a subscript. To read “CH₃COOH”.

Page 180, Figure 6.41: Make Cu²⁺ ion a different colour.

Page 182, Figure 6.43:

In (a), change “Fe(H₂O)₆³⁺” to “Fe(**OH₂**)₆³⁺”

change “Co(H₂O)₆²⁺” to “Co(**OH₂**)₆²⁺”

change “Ni(H₂O)₆²⁺” to “Ni(**OH₂**)₆²⁺”

change “Cu(H₂O)₆²⁺” to “Cu(**OH₂**)₆²⁺”

In (b) change “M(H₂O)₆ⁿ⁺” to “M(**OH₂**)₆ⁿ⁺”

In (c), at end of equation, change “[Be(H₂O)₄²⁺]” to “[Be(**OH₂**)₄²⁺]”

Page 190, Ex. 6.79(b): Change “propan-1,2,3-triol” to “propan**e**-1,2,3-triol”

Page 206, para 2, near end of first sentence: Change “ΔH” to “ΔU”. To read “...the numerical value of Δ**U** is negative.”

Page 222, Section 7.9, equation after para 2: Change “-D” to “**D**” (ie, delete minus sign before D)

Page 228, Ex. 7.40: Subscript the ‘2’ in “(CaC2)” to read “(Ca**C₂**)”

Page 229, Ex. 7.49(b): Insert word “reacts”, to read “What is the standard enthalpy change at 25 °C if 2.5 mol of magnesium **reacts** with oxygen?”

Page 233, Figure 8.1, caption: Change “Russian” to “Canadian”. To read “.... a US scout merit badge, a **Canadian** postage stamp, and the”

Page 242, caption of small margin diagram alongside Figure 8.5: Change “word “block” to “group”. To read “General trends in first ionization energy of main **group** elements with position in the periodic table.”

Page 263, Key Idea (blue font) near bottom of page, line 2: Change word “have” to “occupy”. To read “.... no more than two electrons can **occupy** the same orbital.”

Page 266, Table 8.10: For the entry at Z = 53 in the middle column, the symbol should be “**I**” (not “In”)

Page 272, Exercise 8.42: Add three words to end of question, to read: “Use the concept of effective nuclear charge to rationalize the relative values of the electronegativities of Mg and Cl **atoms in molecules**.”

Page 273, Exercise 8.43: Change question to read: “Use the concept of effective nuclear charge to rationalize the differences in electron affinities of Mg, Cl, and Ar atoms.”

Page 283, under sub-head “Protein Crystal Structures”, para 2, line 2: Change word “this” to “X-ray”. To read “...., can be determined from **X-ray** data.”

Page 291, line 5: Change “π electrons” to “electrons in π orbitals”. To read “.... due to magnetic fields created by **electrons in π orbitals**”.

Page 291, last sentence before Worked Example 9.2: Change word “absorbs” to “resonates” (two times). To read “A ¹³C nucleus that **resonates** at 196.0 δ on a 100 MHz instrument also **resonates** at 196.0 δ on an 800 MHz instrument.”

Page 291, Worked Example 9.3, Line 1, as well as Line 2 of Solution: Change name “p-dimethylbenzene” to “**1,4-** dimethylbenzene”

Page 292, para after Exercise 9.5, lines 1 and 2: Twice, insert word “spectra” after “NMR”. To read “.... the interpretation of ¹H NMR **spectra** has an additional complication relative to ¹³C NMR **spectra** in that signals of”

Page 294, last line before figures: Delete word “transition”. To read “.. can be thought of **as an energy maximum** between two more stable”.

Page 296, EXERCISE 9.8, first sentence: On two occasions replace word ‘two’ by the word ‘three’, to read: “.....draw the **three** staggered conformers and the **three** eclipsed conformations. Then”

Page 297 under the first paragraph in 9.6. . **‘Such compounds are called alicyclic (aliphatic cyclic) compounds [>>Section 9.7], or cycloalkanes if they are cyclic alkanes.’** (Note to editor: preserve all italicizing in original text, please)

Page 299, Section 9.7 Cyclic Molecules, lines 2 and 3: Change the second sentence to read “As we’ll see in Chapter 10, in most alkane molecules the angle between bonds from any carbon atom is 109.5° , the same as that between straight lines from the centre of a tetrahedron to the apices, in which case the bonding electron pairs around the carbon atom are as far apart as possible.”

Page 300, line 3: Insert word “than” after together”. To read “... brings bonding electrons closer together **than** in most alkanes, raising the energy”

p.304: Haworth representation of 2-Deoxyribose in the margin should have all bonds from ring C atoms vertical (not at an angle).

Page 304, second line from bottom: Change word “spectroscopy” to “spectrometry”. To read “.... as determined by mass **spectrometry**, identical infrared spectra,”

Page 305, line 2: Replace “carvone from these two sources are different” with “spearmint oil carvone is different from caraway oil carvone”. To read “Yet receptors in your nose immediately recognize that **spearmint oil carvone is different from caraway oil carvone**”.

Page 305, line 1 after Figure 9.33: Replace “and atom connectivity is the same” with “is the same, as is the atom connectivity”. To read: “In both carvone molecules, the molecular formula **is the same, as is the atom connectivity**.”

Page 308, line 8 in “Chirality in Non-Carbon Centres”: In name “(S)-S-Adenosylmethionine”, the second “S” should be italicized. To read “(S)-**S**-Adenosylmethionine”

Page 308, Un-numbered figure alongside first para of “Chirality in Non-Carbon Centres”, main caption at bottom: As above, in the name “(S)-S-Adenosylmethionine”, the second “S” should be italicized. To read “(S)-**S**-Adenosylmethionine”

Page 308, Un-numbered figure alongside first para of “Chirality in Non-Carbon Centres”: Change the label under the right-hand portion from “Adrenaline” to “**Adenosine**”.

Page 318, line 3: In the italicized sentence, replace the word “stereocentres” by phrase “more than one stereocentre”. To read “Such molecules that are achiral, yet contain **more than one stereocentre**, are called”

Page 319, last sentence before Exercise 9.27: Replace “however” by “cholesterol”. To read “Only one, **cholesterol**, is produced in nature-.....”.

Page 326, Question 9.55: Change the question to read: “Draw **three of the** *cis-trans* isomers of menthol.”

Page 329, Question 9.86: Change “(R)-3-chloro-1-pentene” to “(R)-3-chloro-**pent-1-ene**”.

Page 329, Question 9.92(b): Change ‘2,5,5-trimethylpentane’ to ‘2,**2**,5-trimethylpentane’.

Page 338, Key Idea (blue font) after Exercise 10.4, last line: After “fluorine” add word “atoms”. To read “.... and fluorine **atoms** have one (and three lone pairs).”

Page 342, equation after margin figure bottom left: Insert a space after “2” in “2NO₂(g)” to read “**2** NO₂(g)”.

Page 344, last sentence before figure in middle of page, main column: After “... bond as due”, insert word “to”. To read: “Since we traditionally think of a bond as due **to** a shared pair of electrons,”

Page 353, last sentence before Table 10.6: Before start of sentence (e10.11 and e10.15), insert word “Exercises”. To read “Exercises e10.11 and e10.15 extend this concept to”.

Page 376, Figure 10.25, caption: Delete the last sentence of caption (“Table 10.7 takes this into account.”)

Page 376, Table 10.7: To the caption add “In fact, the evidence suggests that for molecules of F_2 and O_2 the electrons in the σ_{2p} orbitals are slightly lower in energy than those in the π_{2p} orbitals. This does not affect the results of calculations of bond order in these two molecules in their ground states, nor of their simple ions.”

Page 377, #2, lines 1 and 2. Change the first two sentences to read: “Ground-state dioxygen (O_2) is paramagnetic. Each of its molecules have 12 valence electrons (6 from each atom), two of which are unpaired.”

Page 378, display line after para 2: At the end of the displayed configuration, change “ $(\pi^*_{2p})^2$ ” to “ $(\pi^*_{2p})^1$ ”.

Total to read: $[\text{core electrons}] (\sigma_{2s})^2 (\sigma^*_{2s})^2 (\pi_{2p})^4 (\sigma_{2p})^2 (\pi^*_{2p})^1$

Page 413, caption to Figure 11.22, line 4: Delete words “in warm water”. To read “Here, iodine (I_2) sublimes when heated.”

Page 436, equation on line -5: Change “0.100 + 0.900” to “0.900 + 0.100”. To read:

$$x_{\text{water}} + x_{\text{ethanol}} = 0.900 + 0.100 = 1.000$$

Page 461, line 1: Change to “If you boil a solution into which $CO_2(g)$ has been bubbled to dissolve $CaCO_3(s)$, $CO_2(g)$ is driven off, and”

Page 469, Table 13.1, sub-head “Ionization of weak acids and bases, fourth equation: On extreme right side of equation, replace formula “ $H_3O^+(aq)$ ” by “ $OH^-(aq)$ ”. To read “... $NH_4^+(aq) + OH^-(aq)$ ”

Page 488, line 3 after Figure 14.2: After “[<<Section 6.7]” insert comma. To read “aquated aluminium ions, which can be represented as $[Al(OH_2)_6]^{3+}$ complex ions [<<Section 6.7], are weakly acidic.”

Page 504, line -6:

Change first occurrence of word “its” to “methanol’s”

Change “its electrostatic potential map” to “an electrostatic potential map of a molecule”

To read: “The structural features giving rise to methanol’s dual reactivity can be seen from an electrostatic potential map of a molecule, which shows excess”

Page 513, line -2 before Exercise 14.28: Replace word “ionize” by “are protonated”. To read “..... only a tiny percentage of the acetate ions are protonated—as we might expect”.

Page 515, para 2, line 3: Replace word “precipitation” by “formation”. To read “..... waterways contaminated by acid formation is that if the pH is low enough,”.

Page 516, Section 14.7, chemical equation after para 2: On right side of equation (after arrow), insert opening square bracket ([]) immediately in front of “Au.....”. To read “..... $\rightarrow 4 [Au(CN)_2]^-(aq) + \dots$ ”.

Page 521, Section 14.8, para 1: Replace second sentence with “Each amino acid has a characteristic group (R) joined to the central C atom (Table 14.10).”

Page 522, para 4, line 3: By insertion of subscript ‘3’, change formula “ $HGlu^+$ ” to “ H_3Glu^+ ”. To read “..., abbreviated as H_3Glu^+ , has a single positive charge.

Page 531, in “Alternative Solution” (60% down page), first mathematical equation: The first minus sign (-) should be a plus sign (+). To read:

$$pH = 4.30 = pK_a + \log \dots\dots$$

Do not change second minus sign on right of equation.

Page 563, line 3: Change word “cation” to “anion”. To read “.... the more weakly basic the anion, the less effect”

Page 584, line 3: Replace “ $Cl_2(g)$ ” by “ $Mg(s)$ ”. To read “....., to obtain reactive metals such as $Al(s)$ and $Mg(s)$ from their compounds,”

Page 584, first bullet point after Figure 16.6, line 2: Replace words “the other” by “in another”. To read “....., and the species to be reduced is in another.”

Page 586, summary statement (blue font) 60% down page, line 3: After word “occurs”, insert words “at the”. To read “...., and the reduction half-reaction occurs at the cathode.”

Page 588, Section “Batteries”, para 2, line 4:

After “replenishing”, insert “, by electrolysis,” [Note commas on either side]

At end of sentence, delete “by electrolysis”

To read “Recharging a cell means replenishing, by electrolysis, the reagents that were oxidized or reduced.”

Page 593, Table 16.1, top line of entries: On right side (after arrow), insert superscript minus sign to change “F (aq)” to “F⁻(aq)”. To read “... → 2 F⁻(aq)”

Page 603, caption to Figure 16.13, last sentence: Replace entire sentence by “Each inset shows only one of the very many molecules of each substance.”

Page 605, caption for Figure 16.16, line 9: Replace word “chlorine” by “Cl⁻(aq) ions”. To read “... (that is, Cl⁻(aq) ions should be less easily oxidized than water).”

Page 608, Figure 16.18, label near bottom left: Change word in parentheses “oxidization” to “oxidation”.

Page 623, margin note under Figure 17.1:

Line -3: Change word “decreasing” to “increasing”

Line -1: change word “increasing” to “decreasing”.

To read: “..... (“reaction to the right,” with reaction quotient Q increasing), or net change of species on the right to those on the left (with Q decreasing).

Page 639, caption to Figure 17.7, line 2:

After “reactants only” insert comma

Change “-∞” to “0” [∞ is symbol for ‘infinity’]

Change “+∞” to “∞” [ie, delete “+” sign”]

To read “..... from a mixture of reactants only, entirely to a mixture of products only, Q would change from 0 to ∞.

Page 642, caption to Figure 17.8, line 8: Change “-∞” to “0” [zero]. To read “If a reaction mixture contains only reactants ($Q = 0$), as the mixture changes”

Page 645, Exercise 17.21, part (c): After “CO₂” insert “(g)”. To read:



Page 651, first line of mathematical expressions (halfway down), in the equation on the right, following “and”: Delete minus sign [“-”] from “-Δ_rH°”. Full equation to read:

$$\Delta_r G^\circ = \Delta_r H^\circ - T\Delta_r S^\circ$$

Page 651, in the line 60% down “Dividing through by RT gives us”: In front of RT , insert minus sign [“-”]. To read “Dividing through by RT gives us”

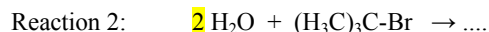
Page 670, first mathematical expression (line 6): Delete “+” sign in front of “ 1.4×10^{-3} ”

Page 676, margin, Interactive Exercise 18.5: Change word “law” to “equation”. To read “Predict changes in initial rates from the rate equation.”

Page 679, margin Interactive Exercise 18.8: Change word “law” to “equation”. To read “Calculate a rate constant using the integrated rate equation for a first-order reaction.”

Page 680, margin Interactive Exercise 18.10: Change word “law” to “equation”. To read “Calculate a rate constant using the integrated rate equation for a second-order reaction.”

Page 702, in equation for Reaction 2 (70% down page): At start of equation, before “H₂O” insert “2” (and space). To read



Page 704, Figure 18.21. Change red label “First step” alongside arrows in middle of figure to green as per label above.

Page 716, Caption to Figure 19.1, last sentence should read. β -Carotene is derived from two molecules of vitamin A, with structure shown in (c).

Page 736, Exercise 19.16. methylprop-2-ene should be 2-methylpropene.

Page 753, Section 19.13, line 4: Replace word “sugar” by “glucose”. To read “....., built of repeating glucose units;

Page 753, caption to Figure 19.30: From line 2, delete “s and p need to be italicized - here and elsewhere throughout the chapter where s, p, or sp, sp², sp³, etc, appear”. To read “Using the hybrid orbital model, two hybridized C atoms are brought together”

Page 759, line 1, structure within parentheses: ON right side, insert long dash between “C” and “R” (to look similar to the structure on line 2). To read $R-C\equiv C-R$.

Page 772, chemical structure bottom right:

Change label “2,4,5-Trinitrotoluene” to “2,4,6-Trinitrotoluene”

At top of structure, change “CH₂” to CH₃

Page 774, lines 3, 4:

Change word “sulfonyl” to “sulfonic acid”

Change “(-C=O)” to “(-COR)” (and note incorrect font of “O”)

To read “.... (-NO₂) group, a sulfonic acid (-SO₃H) group, an alkyl (-R) group, or an acyl (-COR) group. These”
[All dashes long]

Page 777, line 2: Delete word “rings”. To read “character of its molecules, rather than”

Page 778, Section “¹³C NMR Spectroscopy”, line 1: Replace word “between” by “in the region”. To read “.... absorb in the region $\delta = 110-140$. While”

Page 778, caption to Figure 20.8, line 4: Change “CHCl₃” to “CDCl₃”

Page 779, Table 20.1, first entry in “Spectroscopy” column: Change “(cm¹)” to “(cm⁻¹)”

Page 781, Exercise 20.5, line 3 of text: After “NMR” insert word “spectrum”. To read “What chemical shift in the ¹H NMR spectrum would you expect for ...”.

Page 790, lines -1, -2:

After “acetophenone” (line -2), insert “, a ketone,”

After “AlCl₃,” delete “to produce acetophenone, a ketone,”

To read “.... is the synthesis of acetophenone, a ketone, from benzene and acetyl chloride, in the presence of the catalyst AlCl₃, with formation of a new carbon-carbon bond.”

Page 791, para 2, line 1: After “Friedel-Crafts” insert word “alkylation”. To read “.... for Friedel-Crafts alkylation reactions shows”

Page 791, para 2, line 6: Make “isopropyl benzene” one word “isopropylbenzene”.

Page 812, para 2, line 9: Replace word “radical” by “(a free radical)”. To read “..... to produce a chlorine atom (a free radical), which then initiates”

Page 819, Table 21.1, last column, line 3: Change name “Methanthiol” to “Methanethiol”.

Page 820, Section 21.6, line 3:

Change word “law” to “equation”

Change word “shows” to “show”

To read “Experimental rate equation data show that it is first order in”

Page 821, structural equation 40% down page, label under the structure on right side of arrow:

Change name “(R)-2-butanol” to (R)-butan-2-ol

Page 821, structural equation 40% down page, structure on right The structure of the product molecule should have an H atom, rather than the Br atom. [The equation indicates replacement of H, rather than of Br.]

Page 821, para 4, line 6: Change word “molecules” to “particles”. To read “..... orientation of the colliding **particles** to lead to product formation.” [Take care not to change word “molecules on line 5]

Page 842, para 1. 1st and 3rd sentences should read.cyclodextrins contain both R-O-H (hydroxyl or alcohol) **and hemiacetal or acetal functional groups**.

In Chapter 29, you will see that in aqueous solution, some of the alcohol **and hemiacetal** functional groups present in the cyclic form of certain carbohydrates....

Page 843, para 2 last sentence Most often, cyclodextrin host molecules contain one or more trapped guest molecules (Figure 22.2)

Page 847, line 7: Replace words “alkyl sulfonyl” by one word “alkylsulfonate”. To read “..... , or **alkylsulfonate** groups (.....”

Page 844, summary statement (blue font) near bottom: Cyclodextrins are macrocyclic oligomers made of glucose monomers containing alcohol **and hemiacetal or acetal** functional groups.

Page 851, line 4: Shift words ‘methylene groups’ forward after “The two”. To read “The **two methylene groups** **CH₂** and **CH₂** (each with relative”

Page 851, line 7:

Shift first δ (and space) earlier, to in front of “3.2”

Shift second δ (and space) earlier, to in front of “3.0-4.5”

To read “ absorbs at **δ 3.2** in the normal range for alcohols (**δ 3.0-4.5**).”

Page 852, Exercise 22.6, line 1: Change “5-cholestene-3-one” to “**cholest-5-ene-3-one**”

Page 853, un-numbered figure, top of page, label under structure on the right: Change “5-cholestene-3-one” to “**cholest-5-ene-3-one**”

Page 871, para 2: First sentence should read. Thiols are named by adding the suffix *-thiol* after the alkane name.

Page 883, structures at top. Change the label ‘formaldehyde’ to ‘acetaldehyde.’

Page 895. First sentence. Perhaps you recognized alcohol and what seems to be ether functional groups.

Page 895, 4th sentence. ... attached to it -one is **part of an -OH group, the other an -OR group**.

Page 895, 2nd paragraph. Sentence beginning with Acetal should read: ‘Acetal functional groups have two oxygen atoms attached to the same carbon atom, **and each O atom is part of an -OR group**.

Page 895 Top figure - Label ‘Starch’ should be ‘Amylose.’

Page 903, line 5:

After word “stable”, insert word “heterocyclic”. To read “..... a molecule with a stable **heterocyclic** aromatic ring [<<Chapter 20]

Page 904, para 1 of black text, line 2:

Change “NaBH₃” to “NaBH₄”. To read “... and ketones with NaBH₄ or LiAlH₄ ? ...”

Page 919, paragraph beginning with It’s hard. It’s hard... ripe old age without cyclic **amides** like penicillin.

Page 974, para 2, line 2:

Change word “kinds” to “set”. To read “... a completely different **set** of rules—ethical ones—have become”

Page 978, NMR Spectroscopy, 2nd sentence. Hydrogen atom **resonances** rather than hydrogen atom **absorptions** (twice)

Page 979, Section 25.4, line 1:

Change word “shape” to “electron pair distribution”. To read “.. The **electron pair distribution** about an amine nitrogen atom ...”

Page 982, caption to Figure 25.9, second sentence:

Change name “guanosine” to “guanine”

Change name “cytidine” to “cytosine”

To read “A **guanine** base (G) on one strand is shown here aligned with a **cytosine** base (C) on the second strand.”

Page 986, Section 25.5, line 6:

From “methyl-ammonium” delete the hyphen. To read “methyl**a**mmonium”

Page 987, Section “Pyrrole,” para 2, line 1:

Change “five-membered rings, those rings have” to “a five-membered ring, that ring has”. To read “Even though its molecules have **a five-membered ring, that ring has** six”

Page 1008, section “Hydrogen: Group 1,” para 2, line 3:

Replace word “front” by “back”

To read “..... in the periodic table on the inside **back** cover”

Page 1021, line -5 before blue summary statement 75% down page:

Change word “white” to “colourless”

To read “..... a **colourless**, crystalline, water-soluble solid,”

Page 1030, chemical equation on last line:

On right side, in “NO₃(aq)” insert superscript “-“ sign to make “NO₃⁻(aq)”

Page 1060, line -2 before statement in blue font:

Replace words “and 4s shells” by “orbitals and empty 4s orbital”

To read “..... can be attributed to the full 3d **orbitals and empty 4s orbital** of zinc in the”

Page 1076, chemical equations half-way down page, top equation:

In “[Co(NH₃)₅SO₄]²⁺(aq)”, delete “2” from superscript “2+”.

To read “[Co(NH₃)₅SO₄]**+**(aq)”.

Page 1084, Table 27.4, line 3:

Change formula “[Co(H₂O)₆]³⁺” to “[Co(**OH₂**)₆]³⁺”

Page 1087, Exercise 27.12 (a)

Change formula “[Ru(H₂O)₆]²⁺” to “[Ru(**OH₂**)₆]²⁺”

Page 1088, Exercise 27.13 (c):

Change formula “[Fe(H₂O)₆]³⁺” to “[Fe(**OH₂**)₆]³⁺”

Page 1090, Exercise 27.21

First bullet point: Change “[Cr(H₂O)₆]Cl₃” to “[Cr(**OH₂**)₆]Cl₃”

Second bullet point: Change “[Cr(H₂O)₅Cl]Cl₂” to “[Cr(**OH₂**)₅Cl]Cl₂”

Third bullet point: Change “[Cr(H₂O)₄Cl₂]Cl” to “[Cr(**OH₂**)₄Cl₂]Cl”

Line 2 of text: Change “Cr(H₂O)₃Cl₃” to Cr(**OH₂**)₃Cl₃”

Page 1090, Exercise 27.28 (a)

Change “[Co(H₂O)₄Cl₂]⁺” to “[Co(**OH₂**)₄Cl₂]⁺”

Page 1091, Exercise 27.29, line 1

Change “[Co(en)(NH₃)₂(H₂O)Cl]⁺” to “[Co(en)(NH₃)₂(OH₂)Cl]⁺”

Page 1091, Exercise 27.32, line 2:

Change “[Co(en)(NH₃)₂(H₂O)₂]³⁺” to “[Co(en)(NH₃)₂(OH₂)₂]³⁺”

Page 1091, Exercise 27.36, line 1

Change formula “[Mn(H₂O)₆]²⁺” to “[Mn(OH₂)₆]²⁺”

Page 1091, Exercise 27.38 (c)

Change formula “[Cr(H₂O)₆]²⁺” to “[Cr(OH₂)₆]²⁺”

Page 1091, Exercise 27.44:

(a) Change formula “[Cr(H₂O)₆]³⁺” to “[Cr(OH₂)₆]³⁺”

(b) Change formula “[Mn(H₂O)₆]²⁺” to “[Mn(OH₂)₆]²⁺”

(c) Change formula “[Fe(H₂O)₆]²⁺” to “[Fe(OH₂)₆]²⁺”

(d) Change formula “[Ni(H₂O)₆]²⁺” to “[Ni(OH₂)₆]²⁺”

Page 1101, caption to Figure 28.12, line 2:

Replace word “top” by word “left”

To read “In the left photograph, a spider mite”

Page 1114, Margin note with yellow bar on left should read. Carbohydrate molecules contain both R-O-H and hemiacetal or acetal functional groups. In the aqueous solutions found in living organisms, some of the cyclic carbohydrate molecules can be interconverted with open-chain forms that have aldehyde and ketone groups.

Page 1116, section “Configuration of Monosaccharides:”, line 1:

Change word “all” to “most”.

To read “Since most carbohydrate molecules”

Page 1121, margin note, after the dash to read: - one is part of an –OH group, the other part of an –OR group.

Page 1123, line 1 after Figure 29.7

Replace words “Substances made of both anomers” by “Each anomer”

To read “Each anomer of D-glucopyranose”

Page 1124, last line:

Delete word “methyl”.

To read “.... gives a mixture of α and β D-glucopyranoside molecules:

Page 1156, caption to Figure 29.26, line 2:

Change name “robozyme” to “ribozyme”

Page 1186, Table 30.4

To heading above second column “Half-Life”, add “(h)”

To read Half-Life (h)

End