

## Wheeler's rules of writing

(These rules were assembled over several years by Edwin F. Taylor, one of many collaborators with John Archibald Wheeler (JAW). JAW has read these and generally approved them, but he has not edited them.)

**Motivate! Motivate! Motivate!** The text should read like a detective story, keeping the reader on the edge of her chair, gasping for the next handout. Every sentence quotable! Book design must contribute to the rich, headlong plunge.

**Simplify! Simplify! Simplify!** JAW: "Everything important is, at bottom, utterly simple." Einstein: "I want to know His [God's] thoughts, the rest are details."

**The power and generality of the singular, the specific, the committed:** Avoid plurals. "those designing Earth satellites" becomes "anyone designing an earth satellite." Use *the* rather than *a*: "Center of the black hole," not "center of a black hole." No "if," no "suppose;" instead, use "when."

**The power of the present:** Avoid past tense unless talking about history. Avoid unnecessary future tense.

**The power of the active:** Avoid passives.

**The dullness of simply being:** Suppress the use of the verb "to be."

JAW: "Whenever I have an 'is' in a sentence, I know there is something wrong with that sentence."

"...is not a harmonic oscillator" becomes "...does not rate as an harmonic oscillator."

"He is happy" becomes "He beams happiness."

"Schwarzschild spacetime geometry is distinguished from all other conceivable geometries..." becomes "Schwarzschild spacetime geometry distinguishes itself from all other conceivable geometries..."

**Avoid the subjunctive** ("We would like to express the metric as...") except in cases in which you are presenting something with which you do not agree ("Some would conclude incorrectly that...").

**Avoid "ing" words.** "before escaping or plunging" be-

comes "before it escapes or plunges"; "The Earth is rotating" becomes "The Earth rotates."

**Put the key word first** or early in the sentence or at the end of the sentence, not in the middle.

**Rhetorical rule of threes.** Use three descriptions to establish a triangle that spans the idea being presented: "proper time, interval, wristwatch time" or "Schwarzschild radial coordinate,  $r$ , reduced circumference." It is also a reminder of the different descriptors of the same thing.

**Use "we" to include the student,** rather than "you," which is not so friendly: "As we plunge into a black hole..."

However...

**Use infinitive construction:** "To find", "to learn", "to determine" rather than "we do so and so" or "let us do so and so," which is condescending because the author is going to do it anyway.

"We use the Principle of Relativity to derive the invariance of the interval." or "Let us use the Principle of Relativity to derive the invariance of the interval." or "Use the Principle of Relativity to derive the invariance of the interval." all become "To derive the invariance of the interval, use the Principle of Relativity."

**Use commands to stir the blood—but sparingly.**

"Find..."

"Determine..."

"Reckon..." (rather than "compute" or "calculate," which seem technical)

"Plunge..."

But not so much as to seem bossy.

**Appeal to experiment or logic**—not to the professions. Do not invoke "scientists" to enforce a point.

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1 BEHOLD VANISHING POMPEII

2 2 February 2012

3 Editor, Boston Globe:

4 Amazing! The Museum of Science does the impossible: Their Day in Pompeii exhibit shows  
5 the ancient catastrophe, including bodies of people and animals at the moment of death. The  
6 dramatic three-minute movie pictures the rain of volcanic ash followed by the all-engulfing  
7 pyroclastic flow --- *all in forms suitable for children of every age.*

8 Instruction to the adult: At the Boston Science Museum website make an online appointment  
9 for timed entry. Enter the exhibit. Walk swiftly past everything to the back. Enter the room with  
10 the sign "Body Casts". This is NOT a display of medical devices from Massachusetts General  
11 Hospital!

12 View plaster casts of people and animals at their moment of death --- not behind glass.  
13 Nowhere else in the western hemisphere will you see so many in one place.

14 What sensitive adult can view these humans without sobbing? Yet the child treats each form  
15 as an interesting white plaster statue and asks simple questions of her mother or grandfather.

16 The modern pet owner stands devastated: The rain of ash --- cool enough to survive with  
17 some gasping --- falls on the dog left chained by his fleeing owner. As ash accumulates to a  
18 meter deep, the dog digs his way upward to survive. Then his chain tightens. Ash continues  
19 to fall. Result: the dog's final twisted form.

20 Most casts are of dying men and women, alone, in groups, and --- my God! --- the couple  
21 who reaches out to one another.

22 Children and adults watch a three-minute movie that spans the catastrophe, from first tremor  
23 to final black wave of pyroclastic flow. No human or animal appears on screen, just distant  
24 volcano Vesuvius and foreground Pompeii buildings that shudder, burn, collapse, and are  
25 engulfed. The adult who listens hears a few barks and a distant human cry.

26 AFTER THE MOVIE: Lurk around the Body Casts. Hear questions from the endless flow of  
27 children. (Behold the goal of all these efforts!) Listen to the parent who watches her child's  
28 face as she explains each form. She uses the powerful Motivation of Catastrophe to teach  
29 her child about life.

30 The Meaning of Life? To see and listen, to witness in awe, to begin to understand, to digest,  
31 to move on.

32 Hurry! A Day in Pompeii closes on February 12. You have 9, 8, 7, 6 . . . days left!

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