

## Defining Popular Science

- Popular science is interpretation of science intended for a general audience, rather than for experts
- Popular science differs from scientific reporting or science journalism in that while scientific reporting focuses on recent scientific developments, popular science is more broad ranging
- The purpose of scientific reporting is to persuade other specialists of the validity of observations and conclusions while popular science attempts to convince scientific outsiders (including scientists in other fields)

## Why Popularise Science?

- Human beings have had a known history of existence of almost 100,000 years
- A major part of this time was spent in the caves
- For a long time humans continued to live as hunter-gatherers
- It is hardly about 10,000 years ago, that humans took to agriculture and settled down

**Early part of human history was marked by slow changes that took thousands of years!**

## Challenges of Science Writing

**What you write could have wide ramifications—positive as well as negative**

- Primary role of science writers is to comprehend the rapid scientific and technological changes occurring around the world
- Accurately translating the often complex news of new discoveries into lay language
- Often objectively balancing conflicting opinions of scientific experts (e.g. nuclear deal, stem cells)
- Putting discoveries into historical, traditional, personal, economic and social context (e.g. financial implications, medical and environmental dangers)

## Where to Write?

- Print
  - Dailies
  - Periodicals
  - Books
- Electronic
  - Radio
  - Television
  - Internet—Websites, Blogs
  - Educational CDs

## What to Write?

- Fundamentals of science
- Topical events
- Future trends
- Analyses
- Breakthroughs
- Book reviews
- Interviews
- Only your **Imagination** and your **Nose for News** sets the limits!

## Choice of Subject

- Health
- Astronomy & Space
- Environment
- Agriculture
- Biotechnology
- Computers
- Physical sciences/Engineering, and so on

## Choice of Topic

- Nature of audience
- Nature of development
- Topicality
- Local interest
- Scope of illustration

7

## When to Write?

- Regularly
- Coincide with a happening
- Peg your story to an event
- Be fast
- But check with the publication

9

## Researching Information

- Reporters need to sift through masses of information to decide which stories are most significant for their audience
  - Editors are generally on the lookout for material that is new rather than topics that have been covered elsewhere
  - Must be aware of what is already relatively well known
- Be curious and look for the unexpected**

11

## Format of Writing

- Essay/Article
- News story
- Interview
- Photo feature
- Book Review
- Fiction
- Drama format

8

## Before You Write

- Study the publication—very important!
- Subject—biotechnology, astronomy, defence
- Target
  - For newspaper stories local science stories take precedence over national stories
  - For magazine science writers stories in the particular field covered by the magazine are more important
- Types of reports and articles published
- Format—language, style etc. (Ask for a style guide, if any)
- Length of articles
- Unsolicited articles accepted or not

10

## Collecting Information

- Newspapers
- Research journals
- Professional science magazines
- Register for press releases or look for press releases on websites
- Government records
- Interviews with scientists
- Scientific establishments and universities—scientists, PROs
- Visits to breaking news locations
- Internet—organizational, media websites
- Conventions, Conferences, Seminars, Exhibitions, etc.

12

## Authenticating Information

### Science writing demands diligent fact checking

- Original sources
- Books and encyclopaedias
- Scientists
- Websites

13

## Reporting Styles

- Objective reporting
  - Fairly represent all points of view
  - No bias in content
  - Best way to appeal to broad audiences that hold varying values and outlooks
- In Depth/Investigative reporting
  - Involves use of many sources
  - Takes weeks or even months
  - Strong belief

14

## Reporting Styles (Contd.)

- Advocacy reporting
  - Reporting with an agenda
  - Beginning with a point of view
  - Gather evidence to support this view
  - Not necessarily objective
- Precision reporting
  - Based upon polls and surveys
  - Active precision involves reporter doing own polls
  - Reactive precision reports on polls done by others

15

## Reporting Styles (Contd.)

- Humanistic reporting
  - Reporting story through the eyes of a single person
  - Brings complex, often abstract issues into sharp focus
- Marketing approach
  - Employ research to determine what readers want
  - Stories developed around this
  - Targets special groups of readers with special needs and interests

16

## Reporting Styles (Contd.)

- Infographics reporting
  - Stories with figures, statistics, complex description of events
  - Makes use of charts, graphs and bullet-type presentations
- Photojournalism
  - Teaming up pictures and words
  - High impact and emotional power
- New Journalism
  - Intensely personal styles of writing
  - Fictional techniques, dialogue, description, anecdotes, scene-setting
  - Allows maximum freedom

17

## Inverted Pyramid

- Generally the best structure for a news report is the inverted pyramid
- Most essential and most interesting elements at the top with supporting information following in order of diminishing importance
- Enables readers to quit at any point and still come away with the essence of a story
- Allows readers to enter a topic to the depth that their curiosity takes them
- Allows editors to chop off the end in case of space crunch

**Writer's responsibility to anticipate what readers will find most interesting**

18

## Feature Article

- Generally used for magazines and feature sections of newspapers
- Do not necessarily need to follow the straight news format—allows more freedom to writers to lure readers
- First person accounts may add personal touch
- To hold readers' attention till the end, first few paragraphs may not give away everything
- Feature stories often close with a "kicker" rather than simply petering out

19

## Title Tag

- The fewest possible words that adequately describe the contents of the article
  - On average, 8 out of 10 people will read headlines, but only 2 out of 10 will read the rest
  - A good title
    - Is your marketing punch line
    - Catches immediate attention—is creative
    - Showcases your article
    - Avoids complete sentences
    - Makes sense and is related to the content
    - Does not contain abbreviations, formulas, etc.
- Title:** Dietary Causation of Diseases in Humans  
**Alternate:** Your Food Could Make You Sick!
- Keyword for Internet search

## Structure of Article

- Title—Showcasing the article
- Lede—First few paragraphs
- Nutgraff
- Body

20

## The Lede

- Anecdotal/Narrative—Describes a scene or event
    - Two weeks back the transgenic mouse developed at CCMB grew a third tail. It slowly emerged from under the white hair to form a lump.
  - Question-Answer
    - Who would have thought two weeks ago that there would be a three-tailed mouse?
  - Straight
    - Two weeks back CCMB created the first three-tailed mouse.
- Hook the reader in the lede**
- Give the strongest argument in the lede
  - Let him know what to expect in the article
  - First paragraph should not be too long
  - Don't give too many examples
  - Last transitional "hook"

22

## The Nutgraff

- Paragraph or group of small paragraphs tells the readers why anyone should even care to read the article
- It ties the science to an important outside issue (money, health, environment, etc.)
- It may also voice a tension or crystallize a conflict set up by the lede, which when maintained could carry the reader through the story

## The Body

- Should have a logical structure
- It should answer the 5 Ws (Who, What, When, Where and Why) and How
  - Build an outline first
  - Group related points into sections
  - List the sections in a sensible order
  - Cut out anything not relevant
  - Let your article flow

23

24



## Holding the Reader's Attention

- Give background but keep it short
- Answer readers' questions preferably in the first para—5 Ws—when, why, what, where, who—and how
- Move on to the action fast
- Simplicity -- Avoid technical jargon
- Define the technical terms
- Try to populate your story with real people
- Give interesting quotes, otherwise the article can seem dry or unwieldy
- Try to add supplementary information—boxes, tables
- Provide quality illustrations

31

## Revise and Edit

- Make revising and editing your write-up a habit
- Don't fall in love with your writing, be brutal
- Read aloud—the ear detects errors better than the eye

32

## Editing Checklist

- First few and last paragraphs
- Have you avoided using long paragraphs?
- Is your purpose clear right at the beginning?
- Is your organisation and flow of information easy to follow?
- Is the information sufficient and accurate?
- Have you stuck with the main idea and eliminated unrelated ideas?
- Have you gotten rid of unnecessary words and used active verbs?
- Are your spellings correct?

33

## Submitting Work

### Give importance to submission

- Type neatly and in double space
- Number the pages
- Write captions
- Use spell checker
- Give biodata, full address, etc

34

## Reasons for Rejection

- Not enough local interest
- Poorly written
- Story is advertising or promotion with no news value
- Story is fake or untrue or gives incorrect facts
- Against newspaper or magazine policy
- Completely new claim not published in peer-reviewed journal
- Story received too late
- Similar article already received

35

## Ethics of Popular Science Writing

- Avoid false and exaggerated claims
- No plagiarism, please
- Acknowledge sources where relevant
- Present both sides of a controversial issue
- Present a balanced account of the research as well as the researcher
- Ensure exclusivity
- Avoid being tricked into advertising a product or publicising those with the sole intention of self-promotion

36