

Topic: Research articles and popular science articles

Study the following titles originating from research and popular science articles.

For each title, state whether you think it is from a Research article (RA) or a Popular Science article (PA).

1. Three Headaches for the Recycling Industry.
2. Transistors: High-Mobility Transistors Based on Large-Area and Highly Crystalline CVD-Grown MoSe₂ Films on Insulating Substrates.
3. Is graphene really a wonder-material?
4. Fabrication and characterisation of hydrophobic magnetite composite nanoparticles for oil/water separation.
5. A Super-Strong and Lightweight New Material.
6. Surgical Sutures with Porous Sheaths for the Sustained Release of Growth Factors.
7. Solution self-assembly of flower-like ZnO nanostructures with nanosheets and their optical properties.
8. Wonder stuff: Seven new materials to change the world.

Research originally reported in academic journals is often also reported in popular science magazines. Table 1 compares the two genres on the basis of content, structure, language and purpose.

Match the information to the relevant columns for RAs and PSAs

1.	a) Introduction b) Method c) Results d) Discussion
2.	'objective': the writer attributes opinions to other sources using quotations and citations; balanced dramatic and emotional language
3.	recent events of some importance and interest
4.	<u>cautious</u> : characterised by hedging and reference to experimental evidence
5.	to present research results
6.	information presented in descending order of importance
7.	to report newsworthy events in an objective way
8.	a new scientific investigation carried out by the author(s)

Table 1		
	RA	PSA
Content		
Structure		
Language Style		
Purpose		

Study the following linguistic devices (a-g).

Use the table above to decide whether you would find them, in a research article (RA), a popular magazine article (PA) or both (B)?

	a. Reference to researcher's personal experience, opinion, preferences, attitude
	b. Reporting direct speech of experts
	c. Use of noun phrases (rather than verbs)
	d. Researcher limitations (e.g. <i>questions remain, there is no strong evidence, has a major analytical limitation, etc.</i>)
	e. Fronted-research entities (e.g. the <i>data</i> shows, the <i>findings</i> suggest, etc.)
	f. Direct address to the reader

Match the descriptions (a-f) below with each section of a research article (1-6).

1. discussion	2. methods	3. introduction
4. conclusions	5. results	6. abstract

	a. Identifies the research area, explains the importance of the research, provides background information, cites and summarises key literature in the field, points out what still needs to be studied, and introduces the reader to the work presented in the article.
	b. (Re)states the major findings and implications for future research
	c. Interprets the data and suggests the larger implications and/or applications of their results.
	d. Presents the findings (the core of the article); summarises the most important qualitative and quantitative data collected during the study.
	e. Describes how the study was conducted.
	f. Summarises the sections of the paper in an interesting manner.

Task D

Think about the purpose of each section of a research article.

For each of the 6 sentences below:

– **Specify in which section of an RA you would expect to find it.**

Sentence 1:

The self-healing mechanism of the epoxy composites tested under a high normal load can be explained based on their wear morphologies found in Fig. 7. Figure 8 illustrates the self-healing mechanism of the epoxy composites during the wear test with a schematic configuration.

Title: Wear Resistance of Polymers With Encapsulated Epoxy-Amine Self-Healing Chemistry, *Journal of Applied Mechanics*.

Sentence 2:

Direct-write assembly is used to embed fully interconnected 3D microchannel network(s) in an epoxy matrix. 3D scaffolds are fabricated with a fugitive organic ink using a robotic deposition apparatus (Model JL2000, Robocasting Enterprises) in a layerwise scheme.

Title: Self-healing materials with microvascular networks, *Nature Materials*.

Sentence 3:

While the goal of discovering a material that is both strongly ferroelectric and strongly ferromagnetic remains elusive, numerous other interesting multiferroic materials are emerging.

Title: The Direct Conversion of Heat to Electricity Using Multiferroic Alloys.
Advanced Energy Materials.

Sentence 4:

In sum, participants took the spatial position of the robot and coded the stimuli as left and right relative to the grippers of the robot.

Title: Human Cognition in Interaction With Robots: Taking the Robot's Perspective Into Account, *Human Factors*.

Sentence 5:

Most biological hydrogels are mechanically flexible yet robust, and they accommodate transportation (e.g., convection and diffusion) and reactions of various essential substances for life—endowing living bodies with exquisite functions such as sensing and responding, self-healing, self-reinforcing, and self-regulating.

Title: Stretchable Hydrogel Electronics and Devices, *Advanced Materials*.

Sentence 6:

Only for analytic purposes, we temporarily install two other cameras (camera 2 and camera 3) on the vehicle body looking forward and backward respectively and we assume that all the cameras are well calibrated.

Title: Force-Vision Sensor Fusion Improves Learning-Based Approach for Self-Closing Door Pulling, *IEEE Access*.