


# Puspa Shrestha

Best Quality Resource Site for Class 11 And 12 Students  
(Based on Updated Curriculum 2077)

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## Reading

## The Medusa and the Snail

**Before you read**

- What do these pictures mean?
- How are they different?



**Now read the following text about the importance of interdependence at the present time and do the given tasks.**

We've never been as self-conscious about ourselves as we seem to be these days. The popular magazines are filled with advice on things to do with a self: how to find it, identify it, nurture it, protect it, and even, for special occasions, weekends, how to lose it transiently. There are instructive books, best sellers on self-realization, self-help, and self-development. Groups of self-respecting people pay large fees for three day sessions together, learning self-awareness. Self-enlightenment can be taught in college electives.

You'd think, to read about it, that we'd only just now discovered selves. Having long suspected that there was something alive in there, winning the place, separate from everyone else, absolutely individual and independent, we've celebrated by giving it a real name.

**Myself.**

It is an interesting word, formed long ago in much more social ambiguity than you'd expect. The original root was *se* or *seu*, simply the pronoun of the third person, and most of the descendant words, except "self" itself, were constructed to allude to other, somehow connected people; "sibs" and "gossips," relatives and close acquaintances, came from *seu*. *Se* was also used to indicate some side or apart, hence words like "separate," "secret" and "segregate." From an extended root *swedh* it moved into Greek meaning people of one's own sort, and *ethos*, meaning the customs of such people.

“Ethics” means the behavior of people like one’s self, one’s own ethics.

We tend to think of ourselves as the only wholly unique in nature, but it is not so. Uniqueness is so commonplace a property of living things that there is really nothing at all unique about it. The phenomenon can’t be unique and universal at the same time. Even individual, free-swimming bacteria can be viewed as unique entities distinguishable from each other even when they are the progeny of a single clone. Spudich and Koshland have recently reported that motile microorganisms of the same species are like solitary eccentrics in their swimming behavior. When they are searching for food, some tumble in one direction for precisely so many seconds before quitting, while others tumble differently and for different, but characteristic, periods of time. If you watch them closely, tethered by their flagellae to the surface of an antibody-coated slide, you can tell them from each other by the way they twirl, as accurately as though they had different names.

Beans carry self-labels, and are marked by these as distinctly as a mouse by his special smell. The labels are glycoproteins, the lectins, and may have something to do with negotiating the intimate and essential attachment between the bean and the nitrogen-fixing bacteria which live as part of the plant’s flesh, embedded in root nodules. The lectin from one line of legume has a special affinity for the surfaces of the particular bacteria which colonize that line, but not for bacteria from other types of bean. The system seems designed for the maintenance of exclusive partnerships. Nature is pieced together by little snobberies like this.

Coral polyps are biologically self-conscious. If you place polyp of the same genetic line together, touching each other, they will fuse and become a single polyp, but if the lines are different, one will reject the other.

Fish can tell each other apart as individuals, by the smell of self. So can mice, and here the olfactory discrimination is governed by the same H2 locus which contains the genes for immunologic self-marking.

The only living units that seem to have no sense of privacy at all are the nucleated cells that have been detached from the parent organism and isolated in a laboratory dish. Given the opportunity, under the right conditions, two cells from wildly different sources, a yeast cell, say, say, and a chicken erythrocyte, will touch, fuse, and the two nuclei will then fuse as well, and the new hybrid cell will now divide into monstrous progeny. Naked cells, lacking self-respect, do not seem to have any sense of self.

The markers of self, and the sensing mechanisms responsible for detecting such markers, are conventionally regarded as mechanisms for maintaining individuality for its own sake, enabling one kind of creature to defend and protect itself against all the rest. Selfness, seen thus, is for self-preservation.

In real life, though, it doesn’t seem to work this way. The self-marking of invertebrate animals in the sea, who must have perfected the business long before evolution got

around to us, was set up in order to permit creatures of one kind to locate others, not for predation but to set up symbiotic households. The anemones who live on the shells of crabs are precisely finicky; so are the crabs. Only a single species of anemone will find its way to only a single species of crab. They sense each other exquisitely, and live together as though made for each other.

Sometimes there is such a mix-up about selfness that two creatures, each attracted by the molecular configuration of the other, incorporate the two selves to make a single organism. The best story I've ever heard about this is the tale told of the nudibranch and medusa living in the Bay of Naples. When first observed, the nudibranch, a common sea slug, was found to have a tiny vestigial parasite, in the form of a jellyfish, permanently affixed to the ventral surface near the mouth. In curiosity to learn how the medusa got there, some marine biologists began searching the local waters for earlier developmental forms, and discovered something amazing. The attached parasite, although apparently so specialized as to have given up living for itself, can still produce offspring, for they are found in abundance at certain seasons of the year. They drift through the upper waters, grow up nicely and astonishingly, and finally become full-grown, handsome, normal jellyfish. Meanwhile, the snail produces snail larvae, and these too begin to grow normally, but not for long. While still extremely small, they become entrapped in the tentacles of the medusa and then engulfed within the umbrella-shaped body. At first glance, you'd believe the medusae are now the predators, paying back for earlier humiliations, and the snails the prey. But no. Soon the snails, undigested and insatiable, begin to eat, browsing away first at the radial canals, then the borders of the rim, finally the tentacles, until the jellyfish becomes reduced in substance by being eaten while the snail grows correspondingly in size. At the end, the arrangement is back to the first scene, with a full-grown nudibranch basking, and nothing left of the jellyfish except the round, successfully edited parasite, safely affixed to the skin near the mouth.

It is a confusing tale to sort out, and even more confusing to think about. Both creatures are designed for this encounter, marked as selves so that they can find each other in the waters of the Bay of Naples. The collaboration, if you want to call it that, is entirely specific; it is only this species of medusa and only this kind of nude branch that can come together and live this way. And, more surprising, they cannot live in any other way; they depend for their survival on each other. They are not really selves, they are specific *others*.

What does the collaboration of the selves tell us about our identity?

The thought of these creatures gives me an odd feeling. They do not remind me of anything, really. I've never heard of such a cycle before. They are bizarre, that's it, unique. And at the same time, like a vaguely remembered dream, they remind me of the whole earth at once. I cannot get my mind to stay still and think it through.

- Lewis Thomas

## Working with words

### A. Read the text and tick the best alternative to fill in the gaps.

- a. Persons who are related to you and who live after you, such as your child or grandchild are called .....
- i. relatives                      ii. descendants                      iii. siblings
- b. '.....' means to turn or spin around and around quickly
- i. Twirl                      ii. Fold                      iii. Fetter
- c. .... are proteins which contain oligosaccharide chains (glycans) attached to amino acid side-chains
- i. Glycoproteins                      ii. Legumes                      iii. Meat products
- d. .... are carbohydrate-binding proteins that are highly specific for sugar groups that are part of other molecules and so cause agglutination of particular cells.
- i. Lactose                      ii. Legumes                      iii. Lectins
- e. ....are abnormal tissue growths that most often look like small, flat bumps or tiny mushroom like stalks found in the phylum Cnidaria and the medusa
- i. Polyps                      ii. Buds                      iii. Tulips
- f. .... is a biological interaction where one organism, the predator, kills and eats another organism, its prey.
- i. Murder                      ii. Homicide                      iii. Predation
- g. .... is a genus of flowering plants in the buttercup family.
- i. Anemone                      ii. Ammonia                      iii. Amoeba
- h. A/An ..... person is extremely or excessively particular, exacting, or meticulous in taste or standards.
- i. arrogant                      ii. finicky                      iii. symbiotic
- i. .... is a group of soft-bodied, marine gastropod molluscs which shed their shells after their larval stage.
- i. Shell                      ii. Nudibranch                      iii. Jellyfish
- j. A .....is a free-swimming sexual form of a coelenterate such as a jellyfish, typically having an umbrella-shaped body with stinging tentacles around the edge.
- i. medusa                      ii. sea horse                      iii. sea slug

### B. Look up a dictionary and write the meanings of the following words then use them in your own sentences.

arthropod, gastropod, biomass, calcification, metamorphosis, sturgeon

## Comprehension

Answer the following questions.

- a. What are the indicators of the fact that we are very self-conscious about ourselves these days?
- b. How have we celebrated the fact that we have our individual identity?
- c. Are we, human beings, really unique? Why/Why not?
- d. How do fish recognize each other?
- e. What is the function of individuality?
- f. What does the mix-up of two selves tell us about our identity?
- g. What does the author illustrate with the tale of the nudibranch and the medusa?
- h. Why is the author disturbed by the thought of the creatures like the nudibranch and medusa?
- i. What does the writer mean by “they remind me of the whole earth at once?”

## Critical thinking

- a. How does the author make satire on the modern idea of the ‘self’ based on individuality, independence and uniqueness?
- b. Analyze the essay as a creative defense of the interdependence observed in the ecosystem.

## Writing

- A. Write an essay on “Independence vs. Interdependence” in about 250 words.
- B. Write a newspaper article highlighting the increasing individualism in the modern Nepali society.

## Grammar

*Passive voice*

- A. Make passive sentences from the following information as in the example.**

**Example:**

*Toyota cars/Japan/make : Toyota cars are made in Japan.*

- a. volleyball/every/country/play
- b. spaghetti/boiling water/cook
- c. each lesson/an exercise/follow
- d. taxes/the price/include
- e. extensive information/the internet/find
- f. our order/the waiter/took

- g. the schedule/the participants/will distribute
- h. the police/footprint/found
- i. the children/the sandcastles/built
- j. the father/the window/not going to open

**B. Rewrite the following sentences in the passive voice using the correct form of verbs in the brackets.**

- a. Call the ambulance! Two boys ..... (injure) in a motorbike accident.
- b. The clock ..... (use) since the 17th century.
- c. I had to wait outside the classroom while the classroom ..... (clean).
- d. The problem ..... (discuss) by the subject specialists at the moment.
- e. By the time I came back, the task ..... (finish).
- f. Women ..... (say) to be happier than men.
- g. Look! The house ..... (destroy) by the fire.
- h. The other three reports..... (submit) by next month.
- i. Many people ..... (rescue) from the floods by the security persons this year.
- j. The state of Florida ..... (hit) by a hurricane that did serious damage.

## Listening

**A. Answer the questions.**

- a. What types of books do you want to read?
- b. Do you like reading stories or poems? Why?



**B. Listen to the audio and write whether the sentences are *True* or *False*.**

- a. Lisa disliked the book when she first started reading it.
- b. Sam and Lisa felt sorry for Paul, the main character in the book.
- c. Sam was interested in the mystery about Paul and his brother.
- d. Lisa thought the author helped the reader to understand Paul.
- e. Sam wished there was more information about football in the book.
- f. Lisa liked the way the author developed Paul's character.

**C. What is your favourite book? Why?**

## Speaking

### *Expressing counter arguments*

**A. Read the following conversation between two friends on animal testing and notice the expressions of counter arguments.**

A: Hi Pooja! How are things?

B: Fine, and you?

A: I'm feeling rather upset today. I could not see some animals being ripped off alive in the science lab.

B: Well, I must say using animals as test subjects for health products is justifiable.

A: As far as I am concerned, I take it as inhumane activity.

B: To be fair, animal testing has been used in the past to aid the development of several vaccines, such as smallpox and rabies. However, animal testing for beauty products causes unneeded pain to animals.

A: Don't you think it is possible to use human volunteers instead of using animals?

B: Exactly. Animals should not be exploited as far as possible.

**B. Work with a small group to talk around the questions given below. Use the clues of expressing counter arguments from the box.**

a. Is your hometown a good place to live?

b. What's the best thing to eat in your city/village?

c. Is teaching your dream job?

d. Is it better to seek jobs in a foreign country?

e. Is the reservation of quota for a particular sex or caste a good thing?

From my point of view,

It seems to me.....

Personally, I believe/feel.....

What I reckon is.....

If you ask me.....

I'm convinced that .....

## Project work

Go to the forest or a garden and observe how plants, insects and animals depend on each other. Present your observations in the class.