

Lesson plan(Inquiry Method)

(Constructive Approach)

Class 11

Topic Morphology of flowering plants

Subject : Biology

Sub Topic Description of flower

Learning outcomes

- Student will reveal the diversity among flowers in terms of calyx, corolla, gynoecium, placentation
- Students will recall the terminology associated with calyx, corolla, androecium, gynoecium.
- Student will differentiate between given flower on basis of their floral structures
- They will understand and explore role of different whorls of flower in their daily life
- Student will explore relationship of gynoecium and other floral structure in different flowers
- They will understand the arrangement of whorls in flower, placentation
- They will describe the flower in technical terms.
- They will write floral formula of any flower
- They can classify the flower on basis of their floral designs and can assign it's family

Learning Resources

General T. Aid

Smart Board



Specific teaching Aid



Flower, Flash card, Quiz card, riddles cards

Previous Knowledge

It is assumed that students are familiar with different floral parts of flower. They will be able to recognize sepal, petals, carpels , stamens. They knew the terms associated with flower.

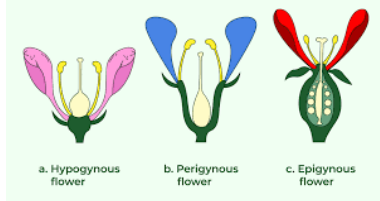
Execution

Point	Teachers Activity	Student Activity
Engage	<p>By showing flash cards teacher will inquire</p> <p>tell the coloured parts of flower shown in picture:-</p>  <p>Name the part of flower that attract the Insects.</p> <p>Which is accessory whorl corolla or gynoecium?</p> <p>Name a term for fused petals.</p> <p>What does + means?</p> <p>Can you identify this flower?</p>  <p>Teacher will tell the students that it is petunia flower.</p> <p>Ok students Can you describe the Petunia flower in a formula?</p>	<p>corolla/ petals</p> <p>coloured leaves /fragrance</p> <p>Corolla</p> <p>polypetalous</p> <p>Actinomorphic</p> <p>No</p> <p>No</p>

Explore	<p style="text-align: center;">Declaration of Topic</p> <p>While the students are engaged observing the Petunia flower, teacher will announce today we will practice the descriptive terms and floral formula of different flower</p>	
	<p>Teacher will show different flowers either on smart TV or flash card and ask the students to observe these flowers and instruct them to tell what they observe</p> <div style="display: flex; flex-wrap: wrap;">  </div> <p>Teacher will ask the colourful leaves in flower are always petals or may be any other part of flower</p> <p>Teacher : you all are right. But in flower there are some other parts that appear as petals but they are not petals.</p> <p>Teacher: ok,you might have seen this flower. Here the coloured leaves are not petals. Can you guess its name?</p> 	<p>Student will observe the flower and may identify the flowers bracteate,bisexual, complete,ebracteate, sessile,pistillate, staminate,pedicillate, etc</p> <p>Student will answer it might sepal or flower may have tepals</p> <p>No</p>

Teacher: it is bract of *Bougainvillea*

Teacher will divide students in group and distribute flash cards bearing diagrams of different kind of flowers and calyx ,corolla, androecium and gynoecium (as shown below)and ask the student to identify and name each part. Further teacher can ask the students to name a few flowers that have such calyx and corolla.

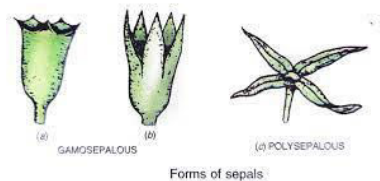


Teacher: can you classify ovary position in these flowers : superior or inferior

Teacher: can you observe the kind of petals in both of these flowers?



Teacher: can you observe the kind of sepals in this picture?



Teacher: can you observe the kind of stamens in this picture?

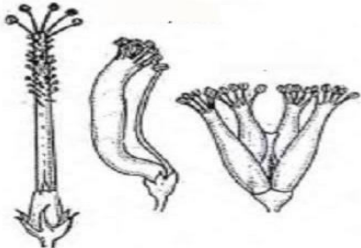
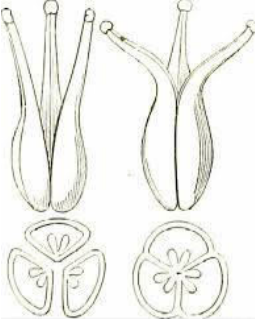

Student will observe that position of Ovary is different in all these flowers

Yes, if ovary is above all floral parts it is superior and vice versa

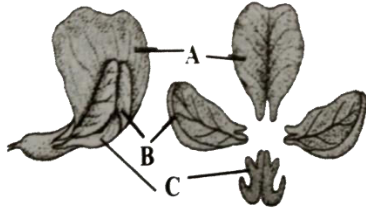
Yes, petals are fused in one flower and free in another

Yes ,we can see fused and free sepals

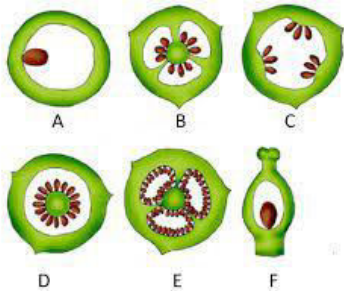
Yes ,we can see fused Stamen in one,two,four groups.

	 <p>Teacher: can you observe the kind of carpels in this picture?</p>  <p>Teacher: yes your observation is right. But Do you know the specific terms for these arrangements</p>	<p>Yes ,we can see fused and free carpels</p> <p>No</p>
<p>Explanation</p>	<p>Teacher will explain the terms polysepalous,gamosepalous, polypetalous, gamopetalous,monoadlphous,diadlphous stamen ,syncarpous and apocarpous gynoecium,different types of calyx and corolla. This flower has crucifer corolla as the petals are arranged in form of cross. This is a specific feature in classification of plant.such plants are included in family cruciferae</p> 	<p>Student can relate the terms with their observation and imbibe the conceptual description of flower.</p> <p>Student learn about specific features that form basis of classification</p>

Similarly flowers having keel- carina arrangement are included in *Papilionaceae*



Can you tell the type of gynoecium observed in this?



Teacher: very good, you tell me about gynoecium. Now I will tell you about placentation.

Arrangement of ovules in ovary is called placentation. It is of marginal (fig a), basal (fig f), axile (fig b), parietal (fig c), free central (fig d).

Observe it from fig A to F

Whenever an explanation is needed teacher will explain the content in broader perspective.

Yes, here in pic B and E three carpels are fused and in rest of diagram only one carpel is there.

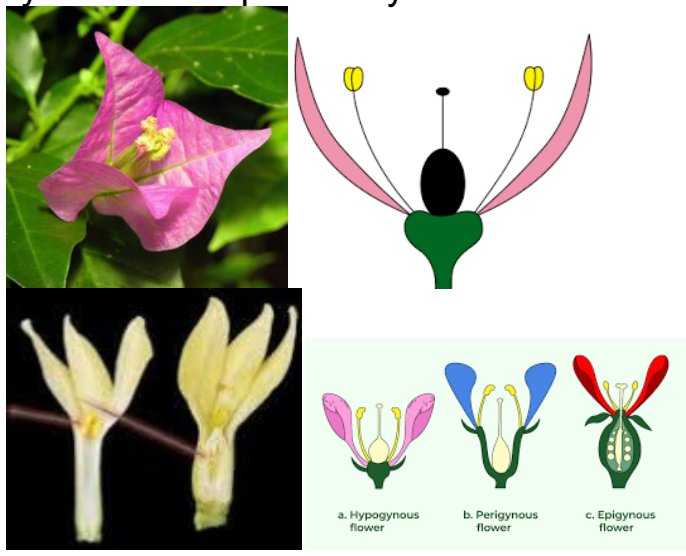
Elaborate

Teacher will show a T.S of a few vegetables and ask the students to observe the kind of placentation and try to make a list of few more examples of this kind of placentation

Teacher: some symbols are used to describe all the parts we studied. When we use these symbols to describe a flower this is called floral formula.


Br	Bracteate
K	Calyx
C	Corolla
P	Perianth
A	Androecium
G	Gynoecium
G	Superior ovary
G	Inferior ovary
○	Male
○	Female
+	Bisexual
⊕	Actinomorphic
⊗	Zygomorphic
%	Fusion
Enclosing figure within brackets	A dhesion
Line drawn over symbols of floral parts	

Teacher will show chart of diagrams and ask the students to tell the flowers and symbolize the parts they can observe.



Student will tell the type of placentation in okra, tomato, lemon. Student will observe the kind of placentation and try to make a list of few more examples of this kind of placentation

Student will observe the flower and use the symbols to describe the flower and write the floral form

<p>Evaluation</p>	<p>Teacher can say a few riddles like Flower of a vegetable known as king of vegetables. Tell the flower and its family</p> <p>Tell whether floral formula of this flower is right?</p>  <p>Floral diagram with floral formula</p> <p>Teacher will now ask the students to explain the terms used in class .</p> <p>Students what have you learnt today</p>	<p>Student will listen the riddle and may answer Brinjal from <i>Solanaceae</i></p> <p>Student will answer yes</p> <p>The students will explain the terms used in class .</p> <p>Students will say that they learnt</p> <ul style="list-style-type: none"> • diversity among flowers • the terminology associated with calyx, corolla, androecium, gynoecium • description of flower in technical terms. • How to write floral formula of any flower
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RECAPITULATION:

Teacher will revise the whole content in a collaborative way to make the learning process more fruitful and effective.

HOMEWORK:

Teacher will assign the work to evaluate the learning outcomes

Assign the term:

- Where stamens are arranged in two whorls?
- Where flower can be cut in two equal halves from more than one plane?
- **Tell the type of flower** whether epigynous, perigynous or hypogynous
Rose, mustard, tomato, okra
- Can we say a flower complete if it has perianth, androecium and gynoecium
- Prepare a list of flowers showing parietal and marginal placentation
- Make floral formula of flower from fruiting plants