1. Name Of The Document:

Science_6th_Separation Of Substances_AmanjotKaur_G.S.S.S. Sheron

SECTION-A Basic description Of The Chapter:

Name Of The Institute	G.S.S.S. Sheron
Teacher's Name	AmanjotKaur
Class	6th
Subject	Science
Name Of The Chapter	Separation Of Substances
No. Of Periods Required To Teach The	9 (Nine)
Chapter	

SECTION – B (Objectives/Expected Learning Outcomes):

B.1 Usefulness in daily Life:

*Benefits of understanding the concept

1. Students will learn how to separate two useful but different substances.

2. They will learn about purification of water for domestic use.

3. They will learn methods of separation and scintific principles behind them.

4. They will learn to use the appropriate method & apparatus to separate the substances.

5. The studentswil learn the physical states of different substances.

*Disadvantages not knowing the concept:

1. The students will not be able to remove impurities from the water, wheat, flour etc.

2. They will not be able to prepare some contents of food for eg. cheese ,Cream/butter etc.

3. They will be ignorant of many types of solutions.

4. They will be unable to learn the impotance of separation of substances.

* Understanding the general events/related phenomenon:

- 1. Students will learn the functioning of water filter.
- 2. They will understand the prepration of common salt.
- 3. They will understand the formation of clouds and raining.

4. They will be able to formation of saturated solutions.

* Knowledge of the content will be useful in domestic activities(purification of water, seiving the flour, preparation of different food contents etc), in agriculture, Salt Industry, Chemical industry, Bakery etc.

B.2 Methods Of separation:

- 1. Hand Picking
- 2.Threshing
- 3. Winnowing
- 4. Sieving
- 5. Sedimentation, Decantation, Filtration
- 6. Evaporation
- 7. Use of more than one method of separation.
- 8. Saturated Solution

B.3 Life skills:

The following life skills can be inculcated through the teaching of the lesson:

1. Skill to use the methods of separation.(For eg. purification of water, preparation of butter, preparation of juice & tea, to get the food grains from crops etc.)

- 2. speaking& presentation skill.
- 3. skill to express his/her views
- 4. Analytical & Creative Thinking
- 5. Research Behaviour
- 6. Team Work
- 7. Enrichment in vocabulary

B.4 Vocabulary

Sr. No	Word in English	Meaning in Punjabi	Pronunciation in English	Transliteration in Punjabi
1	Hand Picking	ਹੱਥਨਾਲਚੁਗਣਾ		ਹੈਂਡਪਿਕਿੰਗ
2	Threshing	ਗਹਾਈ		ਥਰੈਸ਼ਿੰਗ
3	Winnowing	ਛੱਟਣਾਂਅਤੇਉਡਾਉਣਾਂ		ਵਿਨੋਇੰਗ
4	Sieving	ਛਾਨਣਾ		ਸੀਵਿੰਗ
5	Sedimentation	ਤੱਲਛੱਟਣ		ਸੈਡੀਮੈਂਟੇਸ਼ਨ
6	Decantation	ਨਿਤਾਰਨਾਂ		ਡੀਕੈਨਟੇਸ਼ਨ
7	Filtration	ਫਿਲਟਰਕਰਨਾ		ਫਿਲਟ੍ਰੇਸ਼ਨ

8	Evaporation	ਵਾਸ਼ਪਨ	ਈਵੈਪੋਰੇਸ਼ਨ
9	Saturation	ਸੰਤ੍ਰਿਪਤਤਾ	ਸੈਚੂਰੇਸ਼ਨ

SECTION – C (Building Bridges)

- 1. Hand Picking
- 2.Threshing
- 3.Winnowing
- 4. Sieving
- 5. Sedimentation, Decantation, Filtration
- 6. Evaporation
- 7. Use of more than one method of separation.
- 8. Saturated Solution

9. Activities of the chapter:

- 1.To understand winnowing(See Annexure-1)
- 2.To understand seiving (See Annexure-2)
- 3. To understand sedimentation and decantation (See Annexure-3)
- 4.To understand evaporation (See Annexure-4)
- 5.To prepare saturated solution (See Annexure-5)

6. To note the no. spoons of salt or sugar added to prepare a saturated solution.(See Annexure-6)

SECTION – D (Period wise break up of the chapter)

Period	What to be covered
1	Introduction, P.K. testing , to give information about occupations related to the chapter.
2	To teach about methods of separation, Explaining hand Picking &seiving method (Questioning for 5 mins. at the end)
3	Explaining winnowing method(Questioning for 5 mins. at the end)
4	Explaining Sedimentation, Decantation, Filtration& evaporation(Questioning for 5 mins. at the end)
5	Explaining the use of more than one method of separation (Questioning for 5 mins. at the end)
6	To teach about solubility of substances and saturated solution(Questioning for 5 mins. at the end)
7	To survey the methods of separation used in daily life by making the groups of students ,to inspire some groups to make interested puzzles related to the chapter.

8	To prepare the lecture on the chapter by students and evaluation by teacher		
9	Divide the students into groups according to their understanding of the chapter, the students who could not understand the chapter, teach them by changing the method of teaching, give the puzzles prepared in 7th period to the intelligent students		
	SECTION E (Minute breakup of periode)		

SECTION – E (Minute breakup of periods)

E.1 Minute breakup of period-1

Entry hohoviour of	5 mins	By abowing the picture in	Studente would be
Entry behaviour of teacher		By showing the picture in annexure-8, teacher will ask," which method of separation is used & why ?"	Students would be unable to answer the question.
Introduction to topic	5 mins	Teacher will teach objectives of separation and tell the students that different methods of separation are used to purify the substances	Teacher will use coloured chalk on balckboard to clear the content
Career options	2 mins	Teacher will have a talk with the students about the career options which may require the knowledge of the contents of the chapter (Methods of separation)	
To explore writing and thinking	5 mins	Teacher will ask students to preapre a table of methods of separartion of substances which are used in daily life.	Students will prepare a list of different methods of separation of substances
Explaining methods of separation with examples	5 mins	Annexure 2	
Explaining objectives of separation	5 mins	Annexure 3	
Explaining methods of separation with activities	5 mins	Annexure-4	
Home work and Questioning	5 mins	Perform the activities at home and preapre a table. Some questions will also be given in middle or in the end .	

E.2Minute breakup of period-2

Entry behaviour of	5 mins	The teacher will ask the	Students would be
teacher		students, " where is the	able to answer the

		method of sieving is used?"	question.
Introduction to topic	5 mins	Teacher will explain the objective of sieving and after that he/she will teach about hand picking method.	Teacher will teach the content in a creative way.
Career options	2imMt	Teacher would give information about career options in which sieving and hand picking methods are used.	
To explore writing and thinking	5 mins	Teacher will ask the students to make a table of such activities in which both methods of separation (sieving & hand picking) are used.	students would express their views by making a table of activities .
Explain sieving method with examaple	5 mins	Annexure-2	
Explaining hand picking method with example	3 mins	Simple Class room activity	
Explaining the methods with activities	10 mins	See Annexure-2	
Home work and questioning	5 mins	Perform the activities at home and preapre a table. Some questions will also be given in middle or in the end	

E.3 Minute breakup of period-3

Entry behaviour of teacher	5 mins	After performing the activity given in annexure-1, the teacher will ask the students, " where is the method of sieving is used?"	Students would be unable to answer the question.
Introduction to topic	5 mins	Teacher will explain the activities of threshing and winnowing	Teacher will teach the content in a creative way.
Career options	2 mins	Teacher would give information about career options in which threshing and winnowing methods are used.	
To explore writing and thinking	5 mins	Teacher will ask the students to make a table of such activities in which both methods of separation (threshing & winnowing) are	students would express their views by making a table of activities .

		used.	
Explaining threshing method with example	5 mins	Annexure-1	
Explaining winnowing method with example	3 mins	Annexure-2	
Explaining the methods with activities	10 mins	See Annexure-3	
Home work and questioning	5 mins	Perform the activities at home and preapre a table. Some questions will also be given in middle or in the end of the period.	

E.4 Minute breakup of period-4

Entry behaviour of teacher	5 mins	Teacher will ask the students about sedimentation, decantation, filteration and evaporation	Students would be unable to answer the question.
Introduction to topic	5 mins	Teacher would explain the students aboutsedimentation, decantation, filteration and evaporation.	Teacher will teach the content in a creative way.
Career options	2 mins	Teacher will give information about career options (like- sugar industry, salt industry, soap industry) in which sedimentation, decantation, filteration and evaporation methods are used.	
To explore writing and thinking	5 mins	Teacher will ask the students to make a table of such activities of daily life in which sedimentation,decantation,filteration and evaporation are used/occurs.	Students would express their views by making a table of activities .
Explaining sedimentation and decantation method with examples	5 mins	Annexure-4	
Explaining filteration and evaporation method with examples	3 mins	Annexure-3	

Explaining the methods with activities	10 mins	see Annexure-3 and Annexure-4	
Home work and questioning	5 mins	Perform the activities at home and preapre a table. Some questions will also be given in middle or in the end of the period.	

E.5 Minute breakup of period-5

Entry behaviour of 5 mins	Teacher will ask the students	
		Students could not
teacher	about different methods of	give satisfactory
	separation using the activity.	answer.
Introduction to topic 5 mins	Teacher will explain the	Teacher will teach
	students about different	the content in a
	methods of separation used in	creative way.
	the activity.	
Career options 2 mins	Teacher will give information	
	about career options (like-	
	sugar industry, salt	
	industry,soap industry,	
	agriculture, chemical industry)	
	in which different methods of	
	separation are used.	
To explore writing 5 mins	Teacher will ask the students	Students would
and thinking	to make a table of such	express their views
	activities of daily life in which	by making a table of
	different methods of separation	activities.
	are used.	
Explaination of 5 mins		
methods of		
separation with		
examples		
Explaination of 3 mins	See Annexure-7	
methods of		
separation with		
activities		
Home task and 5 mins	Perform the activities at home	
questioning	and preapre a table. Some	
	questions will also be given in	
	middle or in the end of the	
E 6 Minute breekun of neries	period.	

E.6 Minute breakup of period-6

Entry behaviour of teacher	5 mins	Teacher will ask the students about different methods of separation using the activity.	Students would be unable to answer the question
Introduction to topic	5 mins	Teacher will explain the students about different	Teacher will teach the content in a

		methods of separation used in the activity.	creative way.
Career options	2 mins	Teacher will give information about career options (like- sugar industry, salt industry,soap industry, agriculture,chemical industry) in which different methods of separation are used.	
To explore writing and thinking	5 mins	Teacher will ask the students to make a table of such activities of daily life in which different methods of separation are used.	students would express their views by making a table of activities .
Explaination of methods of separation with examples	5 mins		
Explaination of methods of separation with activities	3 mins	See Annexure-7	
Home task and questioning	5 mins	Perform the activities at home and preapre a table. Some questions will also be given in middle or in the end of the period.	

E.7 Minute breakup of period-7

Entry behaviour of teacher	5 mins	Teacher will ask to find out different separation methods in daily life by making the groups of students.	students will think & search out the different methods of separation used in daily life.
Introduction to topic	15 mins	All the groups will present different methods .	
Explaination of methods of separation with activities	15 mins	Students will express their views by experiments	
Home work and question-answer session	5 mins	Perform the activities at home and preapre a table. Some questions will also be given in middle or in the end of the period.	

E.8 Minute breakup of period-8

Entry behaviour of teacher	5 mins	Teacher will ask to find out different separation methods in daily life by making the groups of students.	students will think & search out the different methods of separation used in daily life.
Introduction to topic	5 mins	All the groups will present different methods .	
Explaination of methods of separation with activities	5 mins	Students will express their views by experiments and teacher will evaluate.	
Home work and question-answer session	5 mins	Teacher will ask the students to learn thelesson .some questions will be given for practice.	

E.9 Minute breakup of period-9

Entry behaviour of teacher	10 mins	Teacher will grouping the students by asking questions related to the chapter	
Introduction to topic	25 mins	Students, who could not understand the the topic, they would be asked to revise the topic.Others would be asked to frame the puzzlesexercises.	
Home work	5 mins	Teacher will ask to the students to recaptulate the lesson at home.	

SECTION – F (Contents related to the chapter)

- 1. First of all, ask about methods of separation by using annexure-8
- 2. To give knowledge of objectives of separation
- 3. To give knowledge of different methods of separation
- 4. To give knowledge of hand picking method of separation by activity-2, page no-36 (N.C.E.R.T.-6)
- 5. To give knowledge of threshing method of separation by ray-diagram 5.4, page no-37 (N.C.E.R.T.-6)
- 6. To explain winnowing method of separation by annexure-1 activity.
- 7. To explain sieving method of separation by annexure-2 activity.

- 8. To explain sedimentation and decantation methods of separation by annexure-3 activity.
- 9. To separate water and commo salt with the help of annexure -4
- 10. To explain about saturated solution with the help of annexure -5
 - 11.counting the no. of spoons of sugar and common salt for making saturated solution with the help of annexure-6.

SECTION – G (Listing of possible activities)

Name of concept/skill/outcome	Name of possible activity	Refrence of annexure
1. Presentation of the chapter	present the chapter with the help of diagram	Annexure-8
2. winnowing	Understanding the activity	Annexure-1
3. Sieving	Understanding the activity	Annexure-2
4. sedimentation and decantation	Understanding the activity	Annexure-3
5. Filteration	Understanding the activity	Activity -5, page no- 37 (N.C.E.R.T6)
6. Evaporation	Understanding the activity	Annexure-4
7. Saturated solution	Understanding the activity	Activity -10 ,page no- 42 (N.C.E.R.T6)
 Recaptulation of methods 	 Question Paper Group Activities Vedio on Youtube Recaptulationquestionss 	Exercise, page - 44(N.C.E.R.T6) Methods of separation of substances Annexure-9
5. Team work	To find out different methods of separation in daily life by making groups	
6. Ceativity	Explain the different methods of separation	
7. I.C.T.	Separation of substances	
8. Presentation Capacity	All groups will present different methods of separation	
9. Research	Methods of Separation , which are used in daily life , will be found out.	
10. Vocabulary	Understanding the important words in the chapter with the help of vacabulary.	

SECTION – H (Assesment of the students)

Usefulness in daily life:

- 1. How the stone pieces are separated from the wheat ?
- 2. write two uses of winnowing.

3. How butter is obtained from curd ?

4.Pen down two uses of threshin

5. How tea leafs are separated from tea?

6. What will happen if we don't sieve the flour ?

7. what will the harms to our health if we don't filter the water ?

8. write down two disadvantages , if you don't know the method of decatation.

9. what is necessary condition for winnowing method ?

10. write down a disadvantage of not knowing the method of sedimentation?

11. How the rain comes ?

12. which methods are used by farmers to get the wheat grains from the crop ?

13.Match the column:

water and salt Sieving

pulses and stones Evaporation

flour and small stones Hand picking

14. which method is used to get the common salt from the sea ?

15.why potash alum is used to purify the water ?

16. which methods of separation are used to obtain the products in dairy industry ?

17. Pen down methods of separation which are used at large scale in agriculture.

18. Name any two industries in which sedimentation and filteration are used.

19. How a farmer will separate wheat -chaff from wheat grains?

20. Which method of separation is mainly used in flour mill?

Simplifying the complex:

21.How will you remove dust from rice ?

22. How will you separate oil from water ?

23. Name the process by which a substance changes from vapour to liquid form ?

24. How will you increase the solubility of a solvent ?

25. Define saturated solution.

26. Which substances can be separated by winnowing method ?

27. Explain the functioning of water filter ?

28. How will you separate flour and sugar ?

29. Name the process by which a substance changes from liquid to vapour form.

30.Why we use Alum in purifying the water ?

Life skills :

31. Make a diagram representing the heating of mixture of water and salt .

32. Pen down the methods used to separate different substances from a mixture of salt,water and sand.

33. Write down diffrence between solute and solvent.

34. What is the reason for making the clouds?

35.when the evaporation method is used ?

36. what is required for separating stones form flour ?

37. set the apparatus for separating sand from water.

38. How will you show experimentally the process of evaporation & condensation simultaneously?

39. Why we use big size gauze during the construction of a building ?

40. Write all the methods of separation in a tabular form .

Vocabulary:

41. Give the meaning in punjabi:

.a) Hand Picking b) Threshing c) Winnowing d) Sieving e)Sedimentation f) Decantation g) Filtration h) Evaporation i) Saturated Solution j)Gauz k) Condensation

Give a single word :

42. A solute is added to a solvent to form a------

43. Rice or Wheat is cleaned from dust by -----

44. Separation of seeds of a fruit from its juice is called ------

45. Cream is separated from milk in ------ industry.

Section-I (Assessment Tools for teachers)

1. Mention the strategy to teach the 'method of sieving' to the students.

2. How can we emerge 'importance of separation' in minds of the students ?

3. How can we correlate ' method of sedimentation' with students domestic activities ?

4.which method of teaching should be used for teaching the ' method of threshing' ?

5. How can we picturise the 'processes of evaporation and condansation' from the our surroundings ?

6.What should be checked about the students before starting our topic ?

- 7. Name some career options regarding sedimentation and decantation.
- 8. For Recaptulation of the topic , which tools would you prefer ?
- 9. How will you clarify the difference between sedimentation and filteration?

10. Students want to learn 'method of winnowing' experimentallywhen there is no breez, how will you teach them ?

11. Give any two examples regarding 'separation of substances' which can inculcate the spirt of innovativeness.

12. How will you arise the teamspirtamong the students while teaching the topic ?

13.A student can't express his/her views about any 'method of separation' orally , how would you encourage him to express his/her views?

14. Give one or two examles from which students can learn 'method of hand picking' very easily.

15.suppose some students could not understand the concept of 'sedimentation' after teaching the topic. what would you do?

16.where the questioningshould be done in the period?

17. What steps would you like to be taken for exploring the thinking of the students ?

18.How can you use multi media while teaching the 'methods of separartion of substances' ?

19. How the text book will be helpful in teaching/learning of the topic ?

20. Can any audio, visual or audio-visual aids be helpful in teaching/learning of the above topic effectively? If yes, Explai with an example.

21. How will you teach to the students to separate flour and sugar ?

22. What are the basic requirements for preparing a saturated solution ?

23. When we prepare lemon juice, when the ice should be mixed, before dissolving the sugar or after dissolving the sugar ?In which condition it will be possible to dissolve more sugar ?

24. Why we need to separate the different parts of a mixture? Give two examples.

25. The sizes of particles of contents of a mixture are different. Which methods can you use to separate them ?

26. A student said," My mother had separarted pieces of stones from pulse". The method used by her mother was----- 27. A farmer is separting wheat grains from wheat -chaff in open air. he is using------ method.

28. Sham has removed all dust from the rice by ------ method.

29. Sheela says ," Oh ! it is raining." Arvindreplies," It is raining due to the two processes. The processes are ----- and -----.

30. Ram says to her mother," Mom, No more sugar dissolves now." His mother replied," Oh ! It has become a ------ solution".

1. Name of Annexure	Annexure-1
2. Name of Activity	Winnowing
3. Content	Winnowing
4. Type of Activity	Domestic Activity
5. Required Material	Plate,rice,small pieces of paper,chair and some waste newspaper pieces
 Explaination of Activity 	 MMethod: 1. Place some waste newspapers in open ground. 2. Take mixture of rice and small pieces of paper in a plate.slowlyshaking ,throw plate on ground. Observation & Result: The rice will separate from paper pieces.
 Objectives of learning the activity 	students will be able to learn &do the activity

Annexure-1

1. Name of Annexure	Annexure-2
2. Name of Activity	Understanding sieving
3. Content	sieving

4. Type of Activity	Domestic Activity
5. Required Material	Flour, Chalk dust, sieving and old waste newspapers
6. Explaination of Activity	Method: 1.Sieve the flour with sieving on newspapers. 2.Mix it with chalk dust and again sieve it . Observation and result:Husk of gram will be separated from flour but chalk dust will not be separated.Itisbecause the size of chalk dust particles is equal to size of particles of flour.
7. Objectives of learning the activity	students will be able to learn & do the activity .Students will also learnthe difference between light and heavy particles.

Annexure-3

1. Name of	Annexure-3
Annexure	
2. Name of Activity	Understanding sedimentation and decantation
3. Content	sedimentation and decantation
4. Type of Activity	Domestic Activity
5. Required Material	A cup of rice and water
6. Explaination of	Method: 1. Take rice and mix it with water
Activity	2. Keep it for some time.
	3. Pour the water out containing impuries by tilting the pot.
	Observation And Result:When we keep the mixture for some time ,the impurities would come above while the
	rice would remain at bottom. similarly the pulses & rice
	can be cleaned.
7. Objectives of	students will be able to learn & do the activity .
learning the	
activity	

1. Name of Annexure	Annexure-4
2. Name of Activity	Understanding Evaporation
3. Content	Evaporation

4. Type of Activity	Group Activity
5. Required Material	Burner, stand,beaker ,gauze, water ,salt, kettle plate & ice
6. Explaination of Activity	Method 1. Set Apparatus acc. to diagram 5.13 ,page no.41 (N.C.E.R.T6) Observation And Result:When steam comes in contact with plate, it falls in beaker after condensation. so ,thesalt remains in the kettle.
8 Daigram	diagram 5.13 ,page no.41 (N.C.E.R.T6)
 Objectives of learning the activity 	students will be able to learn & do the activity .

Annexure-5

1. Name of Annexure	Annexure-5
2. Name of Activity	To prepare saturated solution
3. Content	saturated solution
4. Type of Activity	Group Activity
5. Required Material	Water, salt & a beaker
6. Explaination of Activity	Method:1.Take some water in a glass and dissolve a spoon of table salt. 2.Add more & more table salt till a stage is reached when no more salt dissolves. Observation & Result: Prepared Solution will be the saturated solution.
7. Objectives of learning the activity	students will be able to learn & do the activity .

1. Name of Annexure	Annexure-6
2. Name of Activity	Counting the no. of spoons of salt used to prepare a the saturated solution .
3. Content	Counting the no. of spoons of salt used to prepare a the saturated solution .

4. Type of Activity	Group Activity
5. Required Material	Water, Table salt, A beaker
6. Explaination of Activity	 Method:1.Take some water in a glass and dissolve a spoon of table salt. 2.Add more & more table salt till a stage is reached when no more salt dissolves. 3. Count the no. spoons of salt added to prepare the saturated solution. Observation & Result: Prepared Solution will be the saturated solution.
 Objectives of learning the activity 	students will be able to learn & do the activity .

1. Name of Annexure	Annexure-7
2. Name of Activity	Understanding methods of separation
3. Content	Understanding methods of separation
4. Type of Activity	Group Activity
5. Required Material	Burner,gauze,stand,beaker,water ,salt,kettle,plate& ice
6. Explaination of Activity	Method 1. Set Apparatus acc. to diagram 5.13 ,page no.41 (N.C.E.R.T6) Observation And Result:When steam comes in contact with plate, it falls in beaker after condensation. so ,the salt remains in the kettle.
8 Daigram	diagram 5.13 ,page no.41 (N.C.E.R.T6)
7. Objectives of learning the activity	students will be able to learn & do the activity .

Lemon squash - mixture



- 1. Pen down the different methods of separation of substances.
- 2. When do we use sieving?
- 3. Why can't we sieve chalk dust with sieving ?
- 4. What is Filteration ? Explain.
- 5. What is the difference between solute And solvent ?
- 6. When Hand picking method of separation is used ?
- 7. How can we increase the solubility of a substance ?
- 8. What is a saturated solution ?
- 9. What is the difference between decantation and filteration ?
- 10. Explain method of threshing for separation.