

1 Using Field Trips and Worksheets to Assist JHS 1 Learners of a
2 Basic School in Assin Atonsu Address their Refusal to Accept the
3 Concept of Malaria Taught in School

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6

7 **Abstract**

8 The committee's commitments to visit basic school in the Assin community to strengthen
9 good health led to the discovery of JHS 1 pupils' misconceptions about the concept of
10 malaria. Mr. Charles Nuamah, the WASH committee chairman and Miss Ruby Jecty, the
11 secretary, both of Foso College of Education, observed Miss Linda Kwofie, a student teacher
12 on establishing teaching, go through a hectic time facilitating the causes and prevention of
13 malaria. Despite the striking information on Malaria discussed with the learners, these JHS 1
14 learners did not make the attempt to understand the concept of malaria taught in the school
15 because of some superstitious beliefs about the disease held religiously in the community. As
16 malaria threatens human health and WASH has health component as its focus, the authors
17 saw it as a responsibility to research on Malaria and collate the information into a learner
18 friendly package accompanied by appropriate strategies to challenge these misconceptions.
19 Action research design which concerns itself with investigating challenges faced by a group of
20 people and finding immediate resultant strategies to remedy them informed the use of
21 purposive sampling and census techniques to involve all twenty eight JHS 1 learners.

22

23 **Index terms**— malaria, misconception, community walk, worksheets.

24 **1 Introduction**

25 One of the major challenges facing our educational sector today is the infiltration of traditional beliefs into the
26 schools system resulting in internal cognitive conflicts especially when the educational concepts violate traditional
27 beliefs. Observations made during the supervision revealed that JHS 1 learners of a school in Assin Atonsu, a
28 town that shares boundaries with Foso College of Education, show unacceptability of the concept of malaria
29 taught in class because they have had proving pieces of evidence that people infected by malaria are healed by
30 prayers and observing directives from herbal doctors so no amount of conviction with scientific evidence could
31 make them agree to the causes and prevention of malaria. The purpose of this study was therefore to find out
32 the causes and effects of learners' refusal to accept the concept of malaria taught in class and find appropriate
33 strategies to investigate this misconception and right it.

34 In order to solve the problem of learners' gross exhibition of refusal to accept the concept of malaria taught
35 in class, the study was guided by the following questions:

36 ? What are the causes of JHS 1 learners' refusal to accept the concept of malaria taught in class? ? What are
37 the possible strategies that could challenge this refusal among JHS 1 learners? ? To what extent can community
38 walks and worksheets prove appropriate in eradicating this refusal among JHS 1 learners? It is the hope of the
39 authors that the findings and recommendations in this study will equip basic school teachers with possibilities of
40 outlining the misconceptions about academic concepts and ways of challenging them for their resultant academic
41 progress to learners. It is obvious that any research work is bound to suffer hindrances and this research was
42 no exception. Some of the difficulties encountered were; The subject for the study has minimum flirtations by
43 authors and so coming by information for the study was a big blow. The study was also limited to action research

8 C) KINDS OF FIELD TRIPS

44 which presented only pedagogic solutions. The findings of this research were also limited to descriptive analysis
45 by the use of means, frequencies, tables and percentages.

46 2 II.

47 3 History of Malaria

48 Malaria, literally meaning "bad air" and formerly called ague or marsh fever due to its association with swamps
49 and marshland, originates from the Mediaeval Italian word mala aria. Although the parasite responsible
50 for malaria has been in existence for 50,000-100,000 years, until remarkable advances in agriculture and the
51 development of human settlements, there was no increase in the population size of the parasite. (1). The
52 "Roman fever" that was so pervasive in several regions in ancient Rome such as southern Italy, the island of
53 Sardinia, the Pontine Marshes, the lower regions of coastal Etruria and the city of Rome along the Tiber (2)
54 and causing the decline of the Roman Empire because of the favorable presence of stagnant water caused from
55 Irrigated gardens, swamp-like grounds, run-off from agriculture, and drainage problems from road construction,
56 preferred by mosquitoes for breeding grounds was later traced to be Malaria. (3) In Mediaeval West Africa, the
57 people of Djenné successfully identified the mosquito as the vector and cause of malaria. (4) Around 1640, a
58 drug, which happened to be the first effective treatment for malaria, was introduced in Europe by the Jesuits.
59 This drug was extracted from the bark of cinchona tree, which grows on the slopes of the Andes, mainly in Peru
60 whose indigenes made a tincture of cinchona to control fever and later found effective against malaria. By 1677, it
61 was included in the London Pharmacopoeia as an antimalarial treatment. (5) It was in the 1820s that the active
62 ingredient in the drug extracted from the bark, was isolated and named by the French chemists Pierre Joseph
63 Pelletier and Joseph Bienaimé Caventou as quinine. (6) Quinine was the predominant malarial medication until
64 the 1940s, when chloroquine replaced quinine as the treatment of both uncomplicated and severe malaria until
65 resistance supervened, first in Southeast Asia and South America in the 1950s and then globally in the 1980s.

66 4 III.

67 5 Misconception about Malaria

68 According to (7) the general misconceptions about malaria include the following:

69 1. "I did not hear any mosquitoes so I won't be bitten.": The female anopheles mosquito is small and noiseless.
70 She often doesn't leave a mark either. Many people believe that they don't get bitten by mosquitoes, especially
71 if they don't hear them buzzing.

72 2. "I have had malaria, so I am immune.": The misconception regarding immunity and malaria puts many
73 people travelling to malaria areas at risk. There are those who believe that once they have had malaria, they
74 will be immune (similar to the measles situation) but this is not the case. Sleeping under impregnated bednets
75 protects against the anopheles bites during the night. The mosquitos have changed biting habits, their feeding
76 time starts at dusk and ends at dawn, it is not correct as said at midnight. Drug prophylaxis has its side effects
77 yes, but the side effect of not taking it may be ending up at the grave yard. They do not give 100% protection,
78 but they give us medical doctors time to give you effective treatment before the parasite kills you.

79 Stop spreading those lies, young unexperienced people may listen to you and end up seriously ill, life long
80 handicapped with brain damage after cerebral malaria or die.

81 6 a) What are Field Trips?

82 Field trips, also known as instructional trips, school excursions, school journeys, are student experiences outside
83 of the classroom at interactive locations designed for educational purposes through displaying and exhibiting to
84 gain an experiential connection to the ideas, concepts, and subject matter. (9) (10)

85 7 b) Purposes of Field Trips

86 Field trips help to provide firsthand experience and stimulate interest and motivation in science by strengthening
87 observation and perception skills (11). Also, learners have the opportunity to be taken to locations that are unique
88 and cannot be modeled in the classroom but the connection between the field trip venue and the classroom links
89 the field trip's experiential learning with prior experiences and learning from the classroom (12). apart from
90 giving opportunity to encounter a multidimensional activity to learners in which all their senses are fully involved
91 (13), they are also experiential, authentic social events that create a new way of knowing an object, concept, or
92 operation (14). Quality experiences lead to deeper learning and interest development (13).

93 8 c) Kinds of Field Trips

94 Formal field trips consist of planned, wellorchestrated experiences where students follow a documented format.
95 Teachers find such programs comfortable because the students are bound to a choreographed agenda. However,
96 there are minimal opportunities for students to personally interact and connect to the experience (15).

97 Informal field trips on the other hand are less structured and offer students some control and choice concerning
98 their activities or environment. Teachers are often amazed by how much students know and which students possess

99 the most knowledge (15). Together, these qualities create an intrinsically motivated student (15) that encourages
100 students to examine their connection to the local and national communities, as well as their connection to the
101 local and global ecosystems (9). d) Barriers to Effective field Trips (11) identified seven barriers to successful
102 field trips: 1. transportation; 2. teacher training and experience; 3. time issues such as school schedule and
103 teacher's ability to prepare; 4. lack of school administrator support for field trips; 5. curriculum inflexibility; 6.
104 poor student behavior and attitudes; and 7. lack of venue options.

105 Finding time for the trip and making arrangements for students who cannot make the trip adds tasks to an
106 already busy teacher schedule (15,13). Teachers need to determine the logistics to transport students. Large
107 introductory classes present unique challenges due to the need of larger transportation facilities, safety issues,
108 more student logistical planning, and time lost trying to organize the large group (16). It is imperative that the
109 teacher prepares the students for the field trip in order to maintain a level of control that will allow for learning to
110 occur when the class arrives at the venue (18). (19) suggested that often, a teacher's biggest fear is losing control
111 of the students once at the field trip location. Upon arrival at a field trip venue, students are often disoriented
112 resulting in excited, explorative, and unrestrained behavior (20). The teacher should be prepared to focus the
113 students' mental and physical energy towards participation at the venue (12).

114 **9 e) The Role of the Teacher in Organizing Field Trips**

115 Despite the educational benefits of field trips to learners, teachers are directly involved and participate in all
116 the preparation and field trip activities to connect the school's science curriculum to the venue and its focus
117 because the field trip should not be a stand-alone experience (24). The teacher visits the venue prior to the
118 field trip to learn the layout and determine whether the venue is suitable for all the learners ??22; 15). To
119 satisfy the three variables that prepare students for field trips identified by (23) as understanding the venue
120 layout, the focus of the activities, and being prepared to be in a "novelty space," the teacher should connect the
121 students' experiences on the trip with concepts and lessons taught in the classroom. As the field trip begins, the
122 teacher plays a role to make learners comfortable in the new environment by first communicating the venue's
123 expectations to any unfocused or confused students (25). During the field trip, students experience learning in
124 an authentic, informal, natural setting. Each student's prior knowledge, gained both from the classroom and
125 from their personal out-of-school experiences, is used to make connections to the field trip experience (26). The
126 teacher should keep the students engaged. Teachers often utilize worksheets to help students focus on exploring
127 and learning the targeted concepts. Worksheets are quite effective when one worksheet is given to a small group,
128 in which the students are better observers, interact more frequently, discuss the concepts, and ultimately develop
129 more connections between the concepts and the experience ??24; 15). Simple fill-in-the-blank task completion
130 worksheets are not effective, when every student is responsible for his or her own data, where the focus is solely to
131 fill in the data and not to explore or participate in activities (24). Finally, the teacher's actions after the field trip
132 to reinforce learners accumulated experiences through discussion, activities, reading, a television show or movie
133 should not be overlooked. ??28; 24; 29; 30; 21). Students need to solidify their new ideas and observations which
134 have not yet made connections. Reflection will help build those connections, as well as reinforce the successful
135 connections already made on the trip. Students generate greater understanding as teachers develop potential
136 connections through reflection (24). Students should discuss their observations and experiences, and in the case
137 of elementary grades, create presentations to share with their classmates. During the remainder of the school
138 year, the teacher should connect new classroom concepts to the students' field trip experiences (25). In Tal &
139 Steiner's (21) examination of teacher's roles during field trips to museums, neither elementary nor secondary
140 grade level teachers carried out quality postvisit activities. Teachers must recognize the importance of post field
141 trip reflection and debriefing to maximize student interest and learning.

142 **10 IV.**

143 **11 Methodology**

144 The research design used for this study was an action research design. Action research design was chosen because
145 the study focused on a specific problem in a particular setting, that is a JHS in Atonsu and because action
146 research design helps the classroom teacher to establish conditions in the classroom which will enable him/her
147 achieve a particular result. The purposive sampling and census techniques were used to involve all twenty-eight
148 JHS 1 pupils both boys and girls. These sampling techniques were used because they provided the opportunity
149 for all the pupils to be engaged in the intervention processes since all of them showed gross refusal to accept the
150 concept of malaria taught in class. The research instruments used were test items and observation. Observation
151 was carried out during the teaching of malaria in class. It was observed that as the student-teacher was explaining
152 the causes of malaria, the pupils continually shook their heads in disagreement because they had already been
153 saturated in the traditional beliefs of malaria transmission.

154 The authors used test items for the pre and post intervention analysis. These were recorded and used to
155 establish the fact that these were real problems at the pre-intervention stage and to see the effectiveness or
156 otherwise of the intervention put in place at the postintervention stage.

157 **12 a) Pre-Intervention Data Collection**

158 Immediately the student-teacher finished facilitating a lesson on the causes and prevention of malaria, the authors
159 conducted pre-intervention test to find out the pupils' understanding on the topic. The test was made up of eight
160 supply type questions on worksheets, adapted from a WHO document. After the marking, it was observed that
161 the performance was not encouraging.

162 Pupil Name: _____ Instructions: Answer all the questions
163 in this assignment. When you complete them all mail the assignment or bring it in person to AMREF.

164 **13 b) Intervention Process**

165 The authors met the head teacher to get him informed about the need to take pupils on a community walk to
166 enhance their understanding on the concept of malaria. Then the authors discussed with them that they were
167 about embarking on a community walk to the College of Education, the two Nursing and Midwifery Colleges, the
168 Hospital, the river banks and part of Atonsu town behind the river. The head teacher in turn stamped the letters
169 to the principals of the various institutions assembly man and chief of Atonsu. The essence of the community
170 walk to these places was to allow the learners have a feel of a new environment outside the classroom for learning
171 in a relax atmosphere and to observe how health and teacher trainees were seriously taken through the concept
172 of malaria and how a complete ward is reserved for malaria patients to receive intensive care.

173 **14 c) Intervention Design and Implementation Week 1 day 1:
174 Objectives:**

175 By the end of the session, every pupil should be able to 1. Examine the female anopheles mosquito and discuss
176 its parts Discuss the breeding grounds for mosquitoes

177 **15 Procedure:**

178 A picture of a labeled female anopheles mosquito was projected for the pupils to observe and discuss what they
179 thought the various parts were used for. Students talked about using the wings to fly, the eye to see. The nose
180 to smell, the proboscis to suck etc. a detailed discussion about the mosquito was done and after the pupils were
181 prepared for the excursion.

182 **16 Activity 2**

183 The authors went with her pupils to Assinman Nursing and Midwifery Training College where one student nurse
184 guided on the tour. The authors and her pupils discovered that there was a choked gutter just in front of the
185 entrance of the gate which could serve as a breeding ground for mosquitoes. Pupils were given a magnified lens
186 to view the larvae of mosquitoes. At the back the college is a swampy area which could also serve as a breeding
187 ground. The second place visited was the Foso College of Education. They were led by a Science tutor who served
188 as a resource person for the tour. The resource person took the pupils around and showed them their drainage
189 system. It was noticed that all their water passes through covered gutters and for that matter it cannot serve as
190 a breeding grounds for mosquitoes. The resource person however took them to a swampy area on campus. This
191 was a place where the soil texture had a capacity to retain water for a long time so as it rained, the water became
192 stagnant there, as he made a sweep with his hand over the stagnant water, the pupils could see mosquitoes
193 flying about. Again at the entrance opposite the supermarket is a refuse dump where mosquitoes were also seen
194 in empty open cans and other containers that could hold water. The pupils had the opportunity to visit the
195 outskirts of the ladies' dormitories where buckets of water were kept. It was noticed that some mosquitoes had
196 already found these as safe places to breed. The tutor brought us back to campus and showed us the numerous
197 garbage bins with tight lids placed at vantage points on campus. These and the covered gutters, he said were
198 measures of preventing mosquitoes from breeding.

199 When we returned to school, a recap of the visit was done with pupils and the following worksheets were given
200 them in groups to fill and present. A long proboscis (the adapted mouth parts), which projects forward and
201 which the female uses to pierce the skin when taking a blood meal; A body and wings covered with scales; and
202 Wings with veins which show a definite pattern There are over 2,600 known species of mosquitoes in the world.
203 However, in Africa we are mainly concerned with two species namely, the An gambiae sl and An funestus. The
204 life cycle of a mosquito has four distinct stages of development, egg, larvae, pupa and adult. The eggs, larvae and
205 pupae stages are aquatic but the emerging adults are free-flying insects. Mating usually takes place immediately
206 after the adults emerge from the pupa before females seek a blood meal. Both females and males suck nectar and
207 other plant juices as energy sources; but females require a blood meal for maturation of eggs. Mosquitoes rest
208 either indoor or outdoor during the day in cool humid locations to minimize moisture loss. Their biting activities
209 take place from dusk, throughout the night until just before dawn, feeding either indoor or outdoor. Mosquitoes
210 have preference for various hosts (Human & animal) for their blood meal; however, efficient malaria vectors have
211 preference for human blood.

212 17 Week 1 day 2 Objectives

213 By the end of this unit you should be able to: Define malaria Write down the importance of malaria
214 Examine the malaria parasite.

215 18 Procedure

216 The authors, with the help of a community voice had a whole class discussion on malaria with the pupils. The
217 community voice took the pupils through the following As we begin our discussion, it is important for us to know
218 what Malaria is and its importance Malaria is a febrile disease caused by the blood parasite called Plasmodium
219 transmitted by the bite of an infected female anopheles mosquito. Malaria is the most common disease in
220 Africa. It is also the number one cause of death among young children and a significant cause of miscarriages
221 among pregnant mothers. About 95% of children brought to health facilities with fever suffer from Malaria. A
222 significant amount of suffering, complications and death due to malaria can be prevented through prompt and
223 correct treatment and prevention measures. After, the authors had a discussion on the importance and impact
224 of malaria on the society with the pupils. Then a picture of the malaria parasite was projected for the learners
225 to see.

226 Describe the life cycle of the malaria parasite ???
227 ??? Now compare your answers with the following
228 discussion.

229 ? The public health importance of malaria One-fifth of the world's population is at risk of malaria. According
230 to WHO there are between 300 -400 million cases of malaria illness annually (WHO1).

231 The greatest burden and most deaths occur among African children and are on the increase. It endangers the
232 health of women and newborns.

233 Malaria epidemics cause high morbidity and mortality in areas where they are prone particularly in the
234 highland areas.

235 There has been progressive spread of malaria into areas which had been free of the disease in the recent past.
236 Malaria is therefore, an important disease requiring special attention.

237 ? The public health impact of malaria 1. The disease causes widespread premature death and suffering 2.
238 Imposes financial hardship on poor households, 3. Holds back economic growth and improvements in living
239 standards. 4. Acute febrile illness, chronic debilitation, complication of pregnancy, and impairment of the
240 physical development and learning ability of children.

241 19 Time lost and physical inability to engage in

242 productive work and contribution to economic welfare translates directly into economic loss and impacts
243 negatively in the quality of life of individuals, their dependence and or caretakers incase of children.

244 20 Costs to individuals and their families include:

245 purchase of drugs for treating malaria at home; expenses for travel to, and from health clinics; lost days of work;
246 absence from school; expenses for preventive measures; expenses for burial in case of death and other incidental
247 expenditures. 7. Costs to governments include: maintenance of health facilities; purchase of drugs and supplies;
248 public health interventions against malaria, such as insecticide-treated nets; lost days of work with resulting loss
249 of earning; and lost opportunities for joint economic ventures. Such costs can add substantially to the economic
250 burden of malaria particularly in endemic countries and strongly impedes their economic growth.

251 21 Week 1 day 3 Objectives

252 By the end of the lesson, every learner should be able to Differentiate an Anopheles mosquito from the other
253 mosquitoes Describe the life cycle of both the anopheles mosquito and the culicine mosquito.

254 22 Procedure

255 Because of the prior arrangement made with management of the college of education for the visit, this day walk
256 was an enjoyable one. The time was 7:00 a.m. We arrived there to join the science students in their study of the
257 differences between the anopheles mosquito and others and their life cycles. Before the start of the session, all of
258 us were made to go round the premises and identify mosquito prone areas. Equipment was given us to attract
259 as many mosquitoes as we could. When we came back, lenses were given us to observe the types of mosquitoes
260 caught. The images of both mosquitoes were projected for pupils to observe.

261 After the lesson, the facilitator met us for questions and clarifications. When the learners admitted that they
262 had understood everything, we were granted leave and came back to school. Each learner was given a worksheet
263 to fill out the differences observed between the anopheles and other mosquitoes. Then a whole class discussion
264 was held.

265 **23 Some distinguishing features of Anopheline and Culicine
266 mosquitoes**

267 How well can you differentiate an Anopheles mosquito from other Mosquitoes? i. Female
268 anopheline????????????????????????????? ii. Culicine ?????????????????????????? iii. Male anophe-
269 line????????????????????????? iv. Culicine ?????????????????????????? One way that anopheline mosquitoes
270 can be distinguished from culicines is by the length and shape of the palps.

271 Female anophelines have palps as long as the proboscis Female culicines have palps which are much shorter
272 than the proboscis Males Anophelines have palps longer than proboscis and are club-shaped at tip Culicine have
273 palps longer than proboscis, with tapered tips.

274 Then the life cycle of the two mosquitoes were projected and discussed as follows

275 **24 Life cycle of anopheline and culicine mosquitoes**

276 Another way of distinguishing anopheline and culicine mosquitoes is by observing the following: Culex eggs clump
277 together forming a "raft". Aedes eggs float singly, Anopheles eggs have floats.

278 The anopheles larvae rest parallel to the water surface, breathing with specialized hair at last segment. This
279 is in contrast with culicine larvae which rest at an angle to the water surface and has a long siphon for breathing.
280 The pupae for both species are active and do not feed.

281 The adult anopheles rests at an angle while culicine rests parallel to the resting surface respectively.

282 **25 Week 2 Day 1**

283 This day's excursion was done at Nursing School 1. Because the purpose of the visit was already known to
284 the authorities, the principal of the school invited us to the lecture theatre where the students were all set for
285 lectures. The topic was the specie of the plasmodium. The learners observed how seriously the nursing students
286 had taken the lesson. This was a way of challenging their misconception that if malaria was indeed a spiritual
287 disease, why would both teacher and nursing training institutions spend time studying it in formal educational
288 set ups.

289 Back at school, the authors modified what the nursing students studied in simple language with the help of
290 the following WHO document. Plate 1 Appearance of Plasmodium falciparum stages in Giemsa stained thin
291 and thick blood films Plate 2 Appearance of plasmodium malariae stages in Giemsa stained thin and thick blood
292 films Plate 3 Appearance of plasmodium ovale stages in Giemsa stained thin and thick blood films.

293 The four species of Plasmodium which are known to cause disease in man are:

294 **26 Plasmodium vivax (Tertian).**

295 It is the most common species in the World. It is the largest of the malaria parasites found in humans. The
296 length of its asexual cycle is 48 hours. Relapses are common in vivax malaria due to emergence of new blood
297 forms from maturing secondary liver schizonts. In tropical areas, relapses may arise within three to four months
298 of primary attack, while in subtropical areas relapses occur only after nine months or more.

299 **27 Plasmodium ovale, (Tertian)**

300 It is a relatively a rare species with a frequency of less than 5%. It may sometimes be confused with P. vivax.
301 The length of its asexual cycle is 48 hours. Relapses occur as in P. vivax but the disease tends to be more chronic.

302 **28 Plasmodium malariae. (Quartan)**

303 It is a less common species whose length of its asexual cycle is 72 hours. P. malariae is associated with quartan
304 malaria.

305 **29 Plasmodium falciparum, (Sub-Tertian)**

306 It is the commonest species in Africa and it accounts for 95 -98% of all malaria infections. It is responsible for
307 severe illness cerebral malaria and other complications and may cause death. The length of asexual cycle is about
308 48 hours. Fever is produced when the schizonts are mature i.e. at 48 hours interval. Sub-tertian means that
309 diurnal periodicity is common. The liver stage of development take about 14 days.

310 In our environment, you may have noticed that many malaria laboratory tests report the presence of P.
311 falciparum. This is because it is the most common cause of malaria in our environment. Indeed in Africa,
312 Plasmodium falciparum is the most common type of malaria parasite transmitted in Africa, south of the Sahara,
313 accounting in large part for the extremely high mortality in this region.

314 Back to school the worksheets were given the pupils to work on as assignments.

315 List down the four (4) species of Plasmodium i) ?????????????????????????????? ii)
316 ?????????????????????????? iii) ?????????????????????????? iv) ?????????????????????????? Outline
317 one characteristics of each species i) ?????????????????????????? ii) ?????????????????????? iii)
318 ?????????????????????????? iv) ??????????????????????????

319 30 Week 2 Day 2 Objectives

320 By the end of the lesson, every learner should be able to discuss the life cycle of a mosquito. This day's facilitation
321 was done in the learners' own class for the purposes of addressing any future misconceptions that issues about
322 malaria were to be studied in higher institutions. The facilitation was designed as a progression of what the two
323 institutions had studied.

324 The different biting styles of mosquitoes were projected for pupils to observe.

325 Then the following discussion proceeded.

326 As we mentioned earlier, malaria is transmitted by the female Anopheles mosquito which requires blood for
327 the development of its eggs. These eggs are laid on stagnant water or slow flowing water where they stay for 2-3
328 days before they hatch to release mosquito larvae. The larvae grow beneath the water surface and become pupa.
329 After a few days the pupa develops into adult mosquitoes and flies away. The development of mosquitoes from
330 egg to larvae to adults takes 7-14 days at a temperature of 31oC or 20 days at 20oC. If the adult mosquito is
331 female, it looks for a blood meal to facilitate egg development, thereby starting the development cycle all over
332 again. If the adult mosquito is male it feeds on plant juices. When a mosquito sucks the blood of a person who
333 has malaria parasites in his or her blood, the mosquito picks male and female gametocytes where they undergo
334 a series of changes to become sporozoites. The sporozoites are the infective stages of malaria parasites in the
335 mosquito. This process called sporogonic cycle takes about 10 -14 days depending on environmental temperature.
336 When a mosquito carrying sporozoites bites a person, it passes the parasites into The Malaria Life Cycle By the
337 end of the lesson, every learner should be able to mention three vectors involved in malaria transmission.

338 31 Procedure

339 On this day, because it was assumed that the pupils knew something about malaria transmission, the worksheets
340 were given to them before the start of the lectures.

341 32 Mode of Transmission of Malaria:

342 Before you read on, here is an activity to enhance your learning process, take about 10 minutes to think about
343 it and write out your answer.

344 How is Malaria transmitted? Name the vector involved in the transmission.
345 ???
346 ???
347 Then the following note was projected
348 on the screen for pupils to read at random. As pupils read paragraph by paragraph, the facilitator describes
349 the process on the projected diagram. The Malaria parasite lifecycle begins when an infected adult female
350 Anopheles mosquito bites a human being to feed on his or her blood. As it feeds on this blood, it releases
351 malaria sporozoites (parasites) into the blood stream of the host (human being). This is the infective bite. Once
352 the parasites enter the human blood stream they move quickly to the liver cells where they develop and multiply
353 (schizogony). The infected liver cells rupture and release numerous merozoites into the blood, which invade red
354 blood cells (RBCs). This stage takes 9-14 days. Within the RBCs the parasites develop from "rings" into blood
355 schizonts. The schizonts then rupture the RBCs releasing numerous merozoites which invade new RBCs. When
356 the infected red blood cells rupture, this process initiates the chills and fever which are characteristic of Malaria.
357 Indeed, the peaks of fever experienced during malaria coincide with the release into blood circulation of malaria
358 parasites (merozoites) from ruptured RBCs.

358 The period between the infective bite and the onset of symptoms (i.e fever, chills etc.) is called the incubation
359 period of malaria. As we mentioned earlier, the incubation period is usually 7-14 days but may be shorter as in
360 P. falciparum or longer in the case of P. vivax and P. malariae. See figure ?? for an illustration of the cycle of
361 malaria.

362 There was a discussion on the transmission. As the facilitator explained, he points to the stages on the diagram
363 projected alongside.

364 In the space provided below and in your own words; describe the life cycle of the Malaria parasite.
365 ???

366 33 Week 3 Day 1

367 On week three day 1 the learners were asked to give two reasons why we should promptly treat malaria at each of
368 these stages. After the whole class discussion, the following points were established on the two stages of malaria.

369 Uncomplicated Malaria: It presents with fever, chills, nausea, vomiting, headache, joint pains, general malaise,
370 and profuse sweating. It is important to promptly diagnose and treat uncomplicated malaria for two reasons:

371 To avoid the disease progressing to a severe and complicated situation

372 To reduce the number of parasite carriers within the community and hence interrupt further transmission

373 34 Severe Malaria:

374 This is a form of life threatening malaria that can affect many systems of the body as shown in the following
375 table.

37 I. THE CAUSES OF PUPILS' REFUSAL TO ACCEPT THE CONCEPT OF MALARIA TAUGHT IN CLASS

376 Malaria complications are life threatening so we should stop the clinical stage from progressing by early
377 diagnosis and administration of the correct treatment. After the short discussion that served as an introduction
378 to malaria, the visit to the hospital was a perfect compliment. The official in wait for us welcomed us and led us
379 to the conference room where the medical practitioners were having a PDS. The doctors discussed the signs and
380 symptoms of malaria and prepared to visit the malaria ward to see how the patients showed different signs and
381 symptoms. There were some receiving infusions, others given transfusion, nurses administering drugs to others
382 and some throwing up. Some temperatures read 38 0, and other patients shivering with cold. We were made to
383 observe the conditions of those with uncomplicated malaria and those with severe malaria. The differences were
384 obvious. Those with mild attacks could speak, move around and eat but almost all with severe malaria were
385 either on infusion or transfusion because of extreme weakness and blood shortage respectively and others being
386 managed at critical points. This visit had a positive effect on the learners because as the facilitator explained,
387 if it were a spiritual disease, the various tests run on them would not have shown the presence of the parasite
388 and patients would not have responded to treatment. He also addressed that no matter how insignificant the
389 plasmodium parasite may look, once they attack the blood of their host and the blood circulates, it carries the
390 parasites along and very soon the whole blood is infected that is why malaria remains the fastest killer disease if
391 not diagnosed and treated early.

392 35 Week 3 day 2

393 By the end of the lesson, every pupil will be able to 1. List three activities of indigenes that promote malaria
394 infection 2. Educate the indigenes of ways of preventing malaria infections. 3. Initiate communal labour to clear
395 all weedy places in and around the school premises. Beside these educational visits, there was a visit to the
396 Atonsu River. People around the river have poor drainage system. It was noticed that they poured dirty water
397 anywhere and anyhow because they believe that it will drain to the river. These dirty water thrown around
398 anyhow served as breeding grounds for mosquitoes since some are stagnant.

399 From there, the authors with the pupils went to the river banks and realized that there were dense forest
400 canopy around each side of banks and hence serve as a hiding place and breeding ground for mosquitoes.

401 The next activity was to educate the people around the bank of the river. Pupils were put in pairs to visit
402 households and educate them on the causes and symptoms of malaria as well as its prevention. The pupils were
403 prepared for this through the discussion of problem solving and cultural identification skills.

404 The learners were poised for action. The time for communal labour which was fixed at 4:30 p.m was scheduled
405 with the people. It was a successful campaign.

406 At exactly 4:00 p.m. the learners had started gathering with their weeding tools. At 4:30 p.m. we marched
407 to the areas earmarked for the activity: in and around the school premises, the banks of the river and the
408 community center. It was surprising how members of the community joined hands to complete this malaria
409 eradication activity.

410 36 Week 3 day 3: Post -Intervention

411 By the end of the lesson, every learner should be able to demonstrate independent learning skill by answering
412 the following questions.

413 You have now come to the end the intervention session. For the past three weeks, we have managed to define
414 malaria, discussed its causative organism, its life cycle and mode of transmission. If you have are satisfied that
415 we have achieved the learning outcomes, do the attached assignments for marking. If you have any problems in
416 understanding any of the sections, do not hesitate to consult me about it.

417 Pupil Name: _____ Instructions: Answer all the questions
418 in this assignment. When you complete them all mail the assignment or bring it in person to AMREF.

419 37 i. The Causes of Pupils' Refusal to Accept the Concept of 420 Malaria Taught in Class

421 Table 1 discusses the causes of pupils' refusal to accept the concept of malaria. A poll was taken for pupils to
422 write down why they did not accept the concept of malaria taught in class. It could be seen that out of the 28
423 pupils, 4 representing 14% said that they had not experienced the disease before so they couldn't imagine what
424 the teacher was talking about. They said they had never contracted it nor seen anybody have it so the concept
425 was abstract to them. 15 pupils representing 54% chose traditional beliefs. They said ever since childhood, they
426 have been made to believe that Malaria is only contracted if demons make one their target and infect them with
427 it. According to them, it is only a strong and powerful man of god who can, through prayers and pacifications
428 heal an infected person of the disease. Unscientific healing procedure was also chosen by 3 pupils who said per
429 their own experience, it took the drinking of concoctions and other traditional processes like subjecting one in
430 a very hot water temperature and batheing with salty water. No other methods would prove efficacious apart
431 from what they had really trusted. Lastly, teachers' poor method of teaching attracted 6 pupils constituting
432 21% because the pupils said the teachers only talk without illustrations and any touch to practicality. Because
433 majority of the learners admitted that because of their traditional beliefs about the spread of malaria, it was

434 difficult accepting what the teacher was saying, the authors probed further to know the which beliefs militated
435 against the scientifically proven information about malaria taught in class. The learners were told to list two of
436 the beliefs they know about the causes and prevention of malaria. From table 2, it can be concluded that 24 of
437 the learners, forming 86% said that malaria is a spiritual disease. They never understood why a tiny creature like
438 mosquito can cause malaria. They questioned, 'how huge and strong is the mosquito to contain such a parasite
439 which can kill humans?' Again 16 learners felt that only spiritual men could cure malaria by pacifying the spirit
440 beings responsible for its transmission. They believed that being prayed for and given spiritual directives will
441 keep these spirit beings away to complicate the disease so that the concoctions prepared for you could heal you.
442 26 other learners constituting 93% posited that all the orthodox medicines available were manufactured from
443 herbs so if there is the need to full potency of a drug, the herbal product should be more preferable to the
444 orthodox ones which had gone through some artificial processes to reduce its efficacy. The strategies to challenge
445 the misconceptions pupils have malaria was discussed with pupils. The items were explained and the pupils
446 were tasked to choose one. Work sheets was chosen by 6 pupils representing 21%. They said since that will
447 give them some practical touch to the lesson, they would very much want to work with it. Video shows pulled
448 down 7 pupils representing 25%. They posited that something they could not imagine will best be close to real
449 when shown on videos. All their senses would be activated to feel, hear, see, what it means to be infected by
450 malaria. A resource person's visit was equally attracted to 5 pupils representing 18%. They felt that perhaps
451 if an expert in the field handled the concept, it would be more interesting, more information packed and more
452 activity based. However, community walk swept away 10 pupils representing 36%. They said they wanted to visit
453 places where they could a feel of the real situation. Getting to know places where mosquitoes breed, the causes
454 of malaria, symptoms and prevention and seeing people who are receiving treatment other than what they have
455 been exposed to, will go a long way to satisfy their curiosity for a better understanding of the concept. From table
456 3, it could be realized that the preintervention test results was nothing good to write home about as compared to
457 the post-intervention test results while 16 pupils representing 58% scored between 0-5 in the pre-intervention test,
458 only 3 pupils representing 11% scored it during the post intervention. A percentage drop of 47% is a remarkable
459 achievement to note. Again score 6-10 attracted 6 learners representing 21% at the pre-intervention but at the
460 post intervention 2 pupils representing 7% scored it. Here too a 14% decrease was realized. This showed that the
461 range from fail to average recorded a 61% drop signifying an improvement in performance was realized with a
462 conclusion that the concept was now becoming understandable to pupils. Score range of 11-15 attracted 2 pupils
463 constituting 7% while at the postintervention test, 7 pupils representing 25% scored it. In the same achievement
464 trend, score 16-20 attracted 4 pupils representing 14% at the pre-intervention test while a huge number of 16
465 pupils representing 57% scored it at the post-intervention test. A percentage rise of 61 % was acknowledging
466 enough to call for a celebration.

467 **38 Summary of the Study**

468 The main objective of the study was to examine the causes of pupils refusal to accept the concept of malaria
469 among JHS 1 learners of Census and purposive sampling procedure were used to select all twenty-eight pupils for
470 the study. The sample is made up of 16 boys representing 12 girls representing. The data were presented using
471 descriptive statistics.

472 The study identified the following as major findings.

473 1. Causes of refusal to accept the concept of malaria among JHS1 pupils comprise never experiencing the
474 disease, traditional beliefs, unscientific healing procedures, teachers' poor teaching methods. VII.

475 **39 Conclusion**

476 The findings showed that never experiencing the disease, traditional beliefs, unscientific healing procedures,
477 teachers' poor teaching methods are the causes of the inability of pupils to understand the concept of malaria
478 among JHS 1 learners as shown in the literature review.

479 The views of the pupils led to the conclusion that work sheets, video shows, resource person's visit, community
480 walk, was considered to be the most important strategy to reduce inability of pupils to understand the concept
481 of malaria among JHS 1 learners.

482 **40 VIII.**

483 **41 Recommendations**

484 Based on the findings and conclusions of the study, the following recommendations are made.

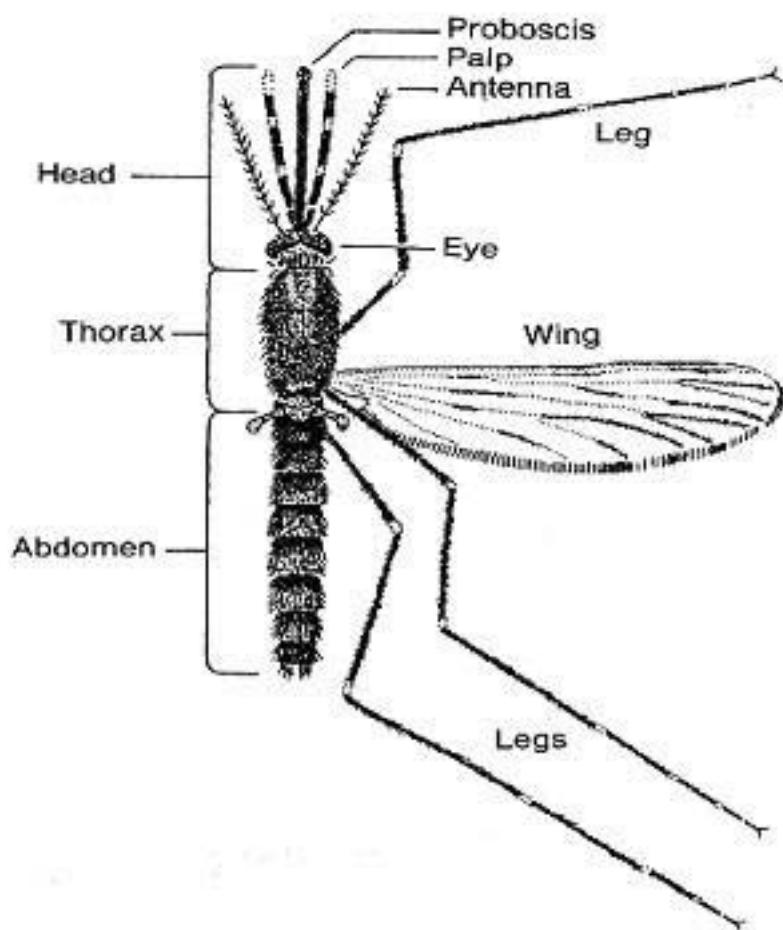


Figure 1:

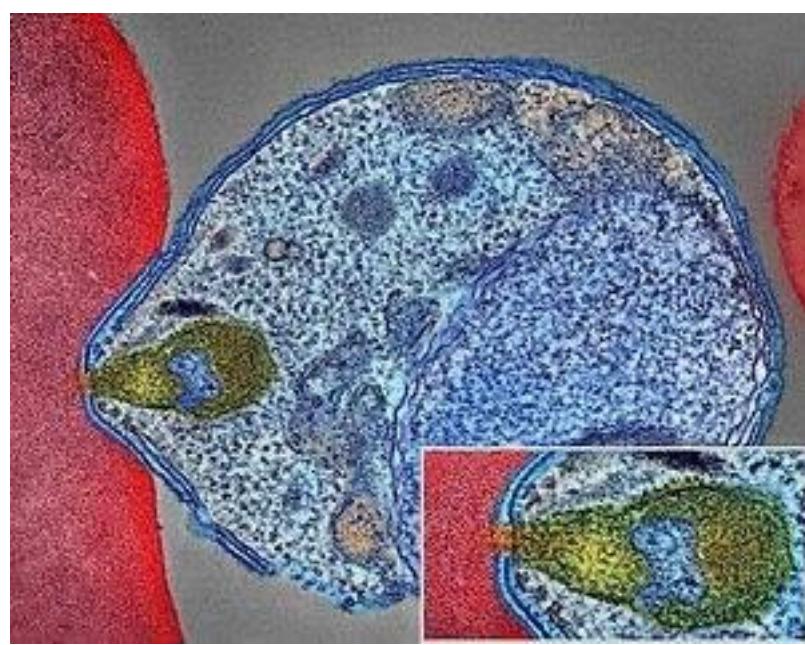


Figure 2:

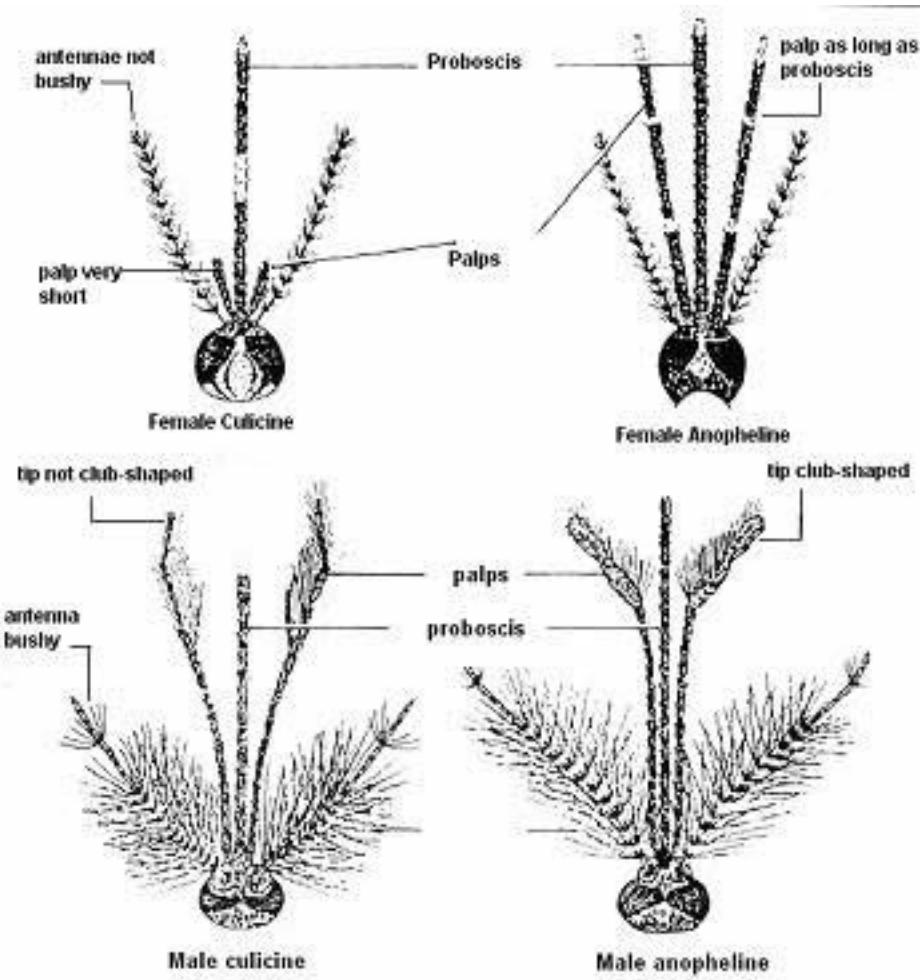


Figure 3:

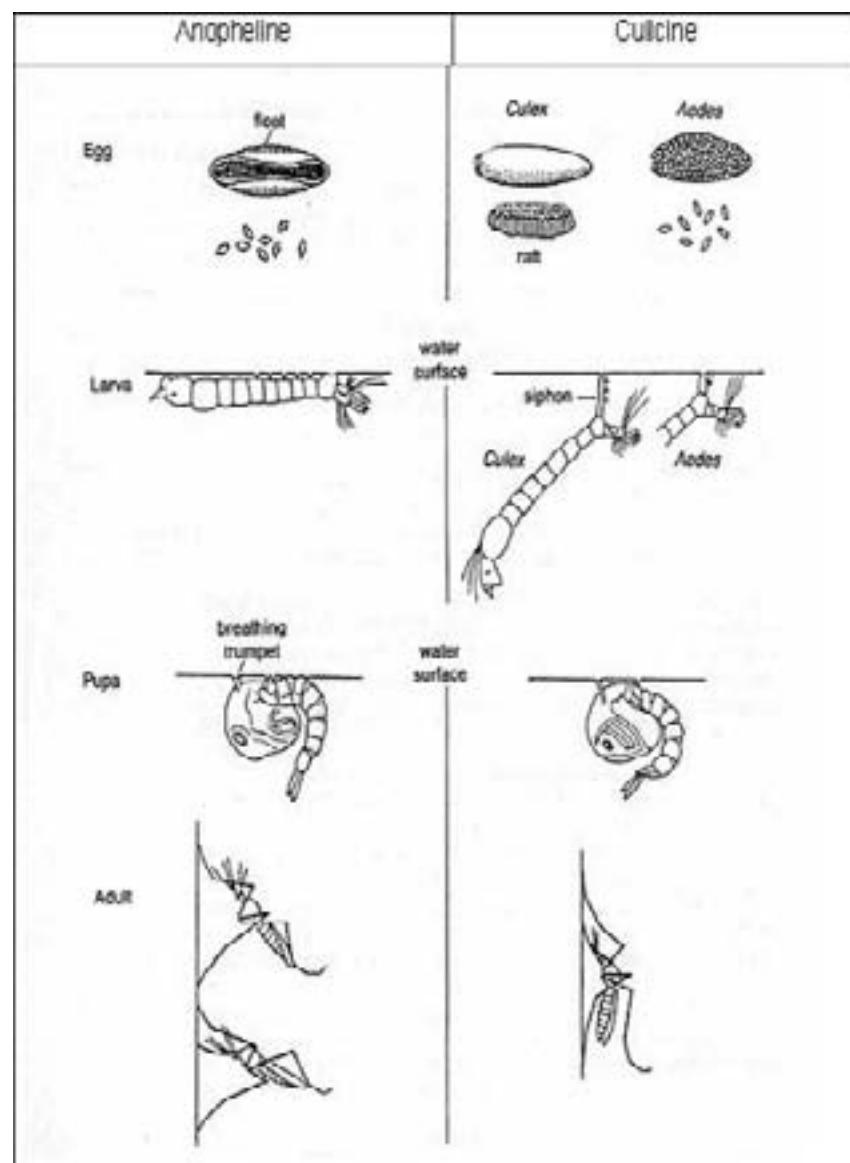
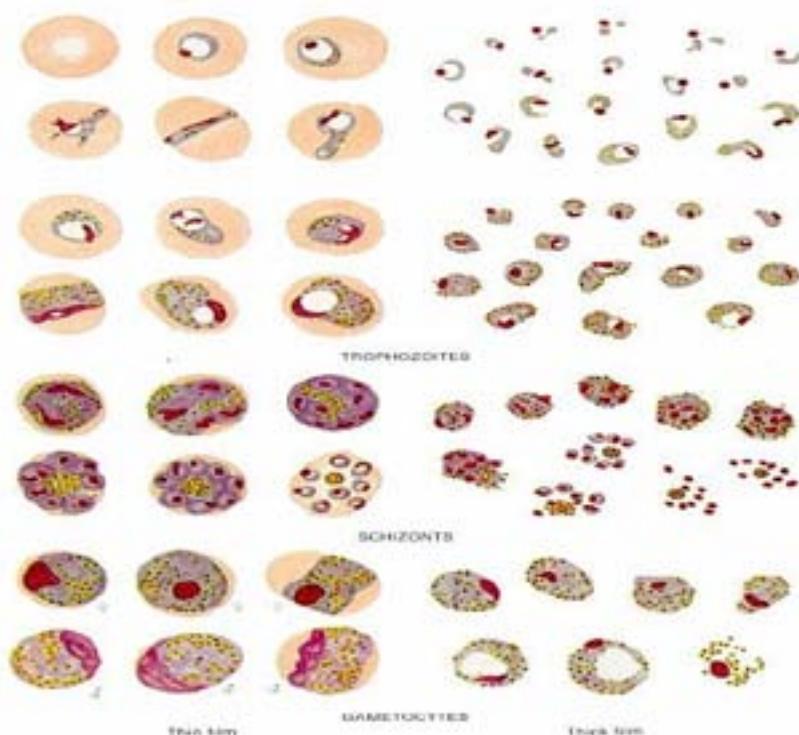


Figure 4:



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Figure 5: 3 .



Figure 6: 2.



Figure 7:

41 RECOMMENDATIONS

Also,
misconceptions about malaria.

(8) do the following

1) These

days tonic water hardly contains quinine, and you'd have to drink some 150 litres per day -even if you'd manage this, I suggest you do not mix it with gin.

2) I keep mosquitoes at bay with ultrasonic devices. This nonsense persists simply because from time to time industry tries to fool us into buying such gadgets. They supposedly produce high-frequency male mosquito sounds that would keep the female away from you. Not so. In fact, selling such gadgets ought to be viewed as unethical.

3) I eat lots of garlic and drink my beer. Numerous stories about food sources that reduce your

attractiveness to mosquitoes persist. Fact is that

there is hardly any evidence that garlic and Vitamin

5) I stay in luxurious hygienic places. Hungry female mosquitoes ignore the price you've paid for your accommodation. Although luxurious places often do better in terms of keeping mosquitoes out

(screening, bednets), once you sit on your veranda at night you'll be on the mosquito menu.

6) There is no malaria-risk in urban centres. Even this doesn't hold. Many large urban centres that you will spend a night or two in before and after your safari ha

1

Causes	Frequency	Percentage
Never experiencing the disease	4	14
Traditional beliefs	15	54
Unscientific healing procedures,	3	11
Teachers' poor teaching	6	21
Total	28	100

Figure 9: Table 1 :

2

Strategies	Frequency	Percentage
Work Sheets	6	21
Video Show	7	25
Resource Person's Visit,	5	18
Community Walk	10	36
Total	28	100

Figure 10: Table 2 :

3

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-Global Journal of Human Social Sci- ence	Class	Marks	Pre- test	(%)	58	Post test	(%)	11
	0-5	6-10	11-15	16	21	14	3	2
	16-20	Total	6 2 4	100	7	16 28 7	100	
					28			

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[Note: Pre-Test Results in Bar GraphPost -Test Results in Bar GraphVI.]

Figure 11: Table 3 :

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