Program Guide

for

Cycle and *Riksa Mechanic*

A short term Apprenticeship Curriculum
for
International Labour Organisation/ Time Bound Program
and
World Education/Brighter Future Project

Council for Technical Education and Vocational Training
CURRICULUM DEVELOPMENT DIVISION
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Introduction

The International Programme on the Elimination of Child Labour (IPEC) of the International Labour Organisation (ILO) has promoted a variety of measures to progressively eliminate child labour, giving priority to the eradication of the worst forms of child labour in Nepal. IPEC's interventions are implemented in partnership with the government, trade unions, employer's associations and non-governmental organizations. One of the innovative programmes promoted by IPEC include the Time Bound Programme (TPB), which aims to prevent and eliminate selected worst forms of child labour, as defined in ILO Convention No. 182, within a defined period of time.

The objective of the Time-Bound Programme (TBP) is to contribute to the Master Plan of His Majesty's Government of Nepal for the Elimination of Child Labour. The Time-Bound Programme is going to take various steps in eliminating the identified seven worst forms of child labour in Nepal: child porters, child domestics, children in trafficking, child ragpickers, children in carpet factories, children in mine/stone quarries and child bonded labour.

The educational interventions of the TBP in Nepal have been among the most effective instruments for the prevention of child labour and the rehabilitation of former child workers. The TBP & Brighter Future Programme (BFP) of World Education (WEI) measures promote access to free education and appropriate vocational training and apprenticeship opportunities for all children and youth removed from the identified worst forms of child labour. In this context, ILO and World Education (WEI) have taken the initiative to design apprenticeship-training programs in various trade areas for the older children working in the worst forms of child labour.

Rational of the programme

The vocational trainings in Nepal have resulted mixed outcomes. Although, there is a rapid proliferation of the technical and vocational training providers and the youth enrolment has been in increasing trend, there are some fundamental problems. Basically, the training programmes are much structured and the training delivery is made in institution-based environment. Similarly, there are minimum standard that needs to be maintained for enrolment. Considering the low literacy background of children engaged in the identified worst forms of child labour, the standard for admission to vocational training institutes is too high. Furthermore, many vocational training institutes have a very high cost. Therefore, ILO and WEI have taken the initiative to look more carefully into apprenticeship models as an alternative to vocational training for older working children.

According to IPEC Nepal and WEI, the term apprenticeship for TBP refers to supervised on-the-job training that provides practical skills and theoretical knowledge and also the experience of a work environment. It is a learning method that prepares a young person at least 14 years of age for a real job by giving him/her a set of well-defined occupational abilities through close supervision and guidance from a potential employer, or from a mentor. Apprenticeship can build confidence in young people, and remind them that they have a positive role to play in their community, and in their country.

Overall objectives

The overall objective of the programme is to eliminate exploitative and hazardous child labour by providing them with skills and knowledge to attain better employment and economic opportunities and linking them to national development efforts including economic, educational and labour market policies of Nepal.

Terminal objectives
After the completion of this course an apprentice will be able:

- to repair wheel systems,
- to repair fork and handle systems,
- to repair pulling systems,
- to repair body system of *Riksa*, and
- to perform denting and painting works.

Course description
This course is designed to help the apprentices to provide basic knowledge and skills on reparing and maintenance of bicycle and tri-cycle. The apprentices will develop their competencies working in the bicycle workshop in an unstructured way. This course especially provides skills focusing on repairing of wheel, fork and handle, pulling and body system. This course also provides skills about denting and painting works related to bicycle and *Riksa*.

Target group
This programme is targeted to the older children engaged in the worst forms of child labour who are above 14 years old. In Nepal, the worst form of child labour include;

1. Domestic child labourers,
2. Child porters,
3. Child bonded labourers,
4. Children involved in trafficking,
5. Rag picking children,
6. Child labourers in carpet industry, and
7. Child labourers in stone quarries and mines.

Group size
The number of apprentice can vary depending upon the facilities available with the apprenticeship-training providers. **Ideally, this should not exceed five in numbers**.

Entry criteria
An apprentice must be or have

1. Engaged in the worst form of child labour.
2. Between 14 to 18 years old.
3. Interest and commitment in apprenticeship training.
4. Current employer's/guardian's consent.
5. Basic literacy.

Duration
Three to five months (2 to 3 hours per day and 5 to 6 days a week) OR as per the agreement between apprenticeship provider and TBP implementing organisation. However, the theory and practical time should be arranged in the ratio of 20:80.

Medium of instruction Nepali.

Pattern of attendance
The apprentice should secure 90% attendance during the training period.

Certificate requirements
National Skill Testing Board (The Skill Testing Division of the Council for Technical Education and Vocational Training, CTEVT) according to its requirement administers skill tests and provides certificate to apprentice.

Apprenticeship provider's qualification
An apprenticeship provider must have:

1. Enthusiasm and motivation to train the older children in the worst form of child labour
2. Qualification and experience in training.
3. Proper tools, equipment and space for training.
4. Safe working environment.
5. Possibility of employment opportunity.

Trainees evaluation
The apprenticeship-training providers will continuously evaluate the apprentice based on their performance.

Equipment, tools and materials
Depending upon the frequency of uses and the number of apprentice the number/quantity of tools/equipment/material varies.

S.No.	Name of the tools/equipment	Units
	Screw driver (6 to 18 No.) Hammer Dial wrench (7 to 18 No.) Spoke wrench Blade wrench Slide wrench (10 to 18 No.) Pana wrench (6 to 17 No.) L - wrench Clamp Plaier Summa (4 to 8 inch) Hack saw blade Scissor To pan Round clamp Drill Air pump Dial machine Die set	

Summary of Duties and Competencies

S. No	Duties and Competencies/Tasks/Skills	Time (in hours)		
		Th.	Prac.	Total
A.	**Repair wheel systems**			
	A.1. Fill air	1	2	3
	A.2. Replace valve (vel) tube	1	3	4
	A.3. Repair minor puncture	1	3	4
	A.4. Repair major puncture	1	4	5
	A.5. Repair tyre bedding gutter	1	2	3
	A.6. Stitch tyre	1	3	4
	A.7. Replace tyre	1	4	5
	A.8. Adjust ring washer		2	2
	A.9. Replace wheel ring	1	2	2
	A.10. Straighten wheel ring	1	3	4
	A.11. Fit spoke	1	3	4
	A.12. Replace metal washer safety / Nipple	1	2	3
	A.13. Maintain / repair / replace hum	1	2	3
	A.14. Repair / Replace ball bearing	1	2	3
	A.15. Replace / Repair hub axle (dhura)	1	2	3
	A.16. Replace bush bearing	1	2	3
B.	**Repair fork and handle systems**			
	B.1. Adjust handle	1	2	3
	B.2. Repair / Replace bell	1	2	3
	B.3. Adjust brake	1	3	4
	B.4. Replace brake clip		2	2
	B.5. Replace brake shoe / rubber	1	2	3
	B.6. Adjust frame	1	2	3
	B.7. Repair / Replace ball / balesar	1	2	3
	B.8. Adjust fork	1	2	3
	B.9. Repair / Replace balesar related to fork	1	2	3
	B.10. Repair / Replace lock	1	3	4
	B.11. Adjust / Repair / Replace seat / seat pillar	1	2	3
	B.12. Repair / replace ball related to fork	1	2	3
	B.13. Fit front wheel	1	3	4
C.	**Repair pulling systems**			
	C.1. Repair / replace paddle gear crane	1	3	4
	C.2. Repair / Replace B.B. set	1	2	3
	C.3. Repair *kutta* / ball / spring of free wheel	1	2	3
	C.4. Replace free wheel set	1	2	3
	C.5. Adjust chain	1	2	3
	C.6. Replace chain	1	4	5
	C.7. Repair / replace peddle set / peddle	1	2	3
	C.8. Adjust / repair chain cover		2	2
	C.9. Replace free wheel teeth	1	2	3
	C.10. Adjust / repair mudguard	1	2	3
	C.11. Adjust / repair carrier	1	3	4
	C.12. Repair / replace cycle stand	1	2	3

S. No	Duties and Competencies/Tasks/Skills	Time (in hours)		
		Th.	Prac.	Total
	C.13. Repair / replace gear cycle gear	1	3	4
D.	**Repair body systems (Tricycle, *Riksa*)**			
	D.1. Adjust / repair angle	1	2	3
	D.2. Adjust / repair kamani	1	3	4
	D.3. Adjust / repair angles supporter	1	3	4
	D.4. Adjust / repair / replace long rod, (Dhura	1	3	4
	D.5. Adjust / Replace bearing / bearing box	1	3	4
	D.6. Adjust / Replace nuts & bolts	1	3	4
	D.7. Adjust / repair / replace riksa body seat	1	2	3
	D.8. Adjust / repair / replace body	1	3	4
E.	**Perform denting/painting works**			
	E.1. Dissemble cycle / *riska* parts	1	2	3
	E.2. Wash cycle *riksa*		2	2
	E.3. Remove old painting	1	3	4
	E.4. Apply sand paper	1	2	3
	E.5. Apply putting on joints / holes	1	2	3
	E.6. Apply primer (Iron oxide).	1	3	4
	E.7. Apply final paint.	1	3	4
	E.8. Perform decorating works.	1	3	4
F.	**Communicate with other**			
	F.1. Communicate with senior cycle mechanics	1	2	3
	F.2. Communicate with client.	1	2	3
	F.3. Communicate with employer.	1	2	3
	F.4. Communicate with colleagues.	1	2	3
	F.5. Communicate with supervisor.	1	2	3
	F.6. Communicate with supplier.	1	2	3
	F.7. Communicate with visitor.	1	2	3
	F.8. Communicate with junior.	1	2	3
	F.9. Communicate with Cycle and Riksa parts shops.	1	2	3
	F.10. Receive telephone call.	1	2	3
G.	**Grow professionalism**			
	G.1. Consult senior cycle mechanics	1	2	3
	G.2. Visit equipped working places/sights	1	3	4
	G.3. Read related materials (Documents, manuals, brochures etc.)	1	3	4
	G.4. Seek trainings places /programs	1	4	5
	G.5. Attend training/ seminar/workshops	1	2	3
	G.6. Watch Audio-Visual.	1	2	3
	G.7. Browse World Wide Web.	1	2	3
	Total	**71**	**159**	**230**

Duty 1: Repair wheel systems.

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Fill air.	⍓ Introduction of Air tight ⍓ Air leakage and puncture. ⍓ Filling procedure ⍓ Safety precaution	1	2	3
2.	Replace valve (vel) tube.	⍓ Introduction and importance of valve, rubber, seal, glue (adhesive). ⍓ Replacing procedure. ⍓ Safety precaution.	1	3	4
3.	Repair minor puncture.	⍓ Different between minor and major puncture. ⍓ Identification of minor puncture. ⍓ Materials and accessories for puncture repair ⍓ Nature of minor puncture ⍓ Patching technique. ⍓ Safety precaution.	1	3	4
4.	Repair major puncture.	⍓ Identification, size and nature of major puncture. ⍓ Patching technique ⍓ Safety precaution.	1	4	5
5.	Repair tyre bedding gutter.	⍓ Introduction and importance of gutter. ⍓ Bedding gutter size. ⍓ Procedure. ⍓ Safety precaution.	1	2	3
6.	Stitch tyre.	⍓ Importance of stitching ⍓ Purpose and size of stitching. ⍓ Method of stitching. ⍓ Care of tyre. ⍓ Stitching technique ⍓ Safety precaution	1	3	4
7.	Replace tyre.	⍓ Importance and identification of tyre ⍓ Tyre type, size and rating. ⍓ Procedure. ⍓ Safety precaution	1	4	5
8.	Adjust ring washer.	⍓ Importance and identification of ring washer ⍓ Type and size of ring washer		2	2

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
		⍓ Adjustment procedure ⍓ Safety precaution ⍓			
9.	Replace wheel ring (rim).	⍓ Importance and identification of wheel ring. ⍓ Ring size ⍓ Replacement procedure. ⍓ Safety precaution.	1	2	2
10.	Straighten wheel ring.	⍓ Ring straightening technique ⍓ Safety precaution.	1	3	4
11.	Fit spoke.	⍓ Importance of spoke adjustment. ⍓ Identification and function of spoke. ⍓ Fitting procedure. ⍓ Safety precaution.	1	3	4
12.	Replace metal washer safety / Nipple.	⍓ Importance and identification of metal washer safety ⍓ Function of metal washer safety. ⍓ Procedure. ⍓ Safety precaution.	1	2	3
13.	Maintain / repair / replace hub.	⍓ Importance and identification of hub ⍓ Function of hub ⍓ Procedure. ⍓ Safety precaution	1	2	3
14.	Repair / Replace ball bearing.	⍓ Importance and identification of ball bearing. ⍓ Bearing type and size. ⍓ Worn check up. ⍓ Procedure. ⍓ Safety precaution.	1	2	3
15.	Replace / Repair hub axle (*dhura).*	⍓ Importance and identification of hub axle ⍓ Function of hub axle ⍓ Procedure ⍓ Safety precaution.	1	2	3
16.	Replace bush bearing.	⍓ Importance and identification of bush bearing ⍓ Function of bush bearing. ⍓ Procedure. ⍓ Safety precaution.	1	2	3

Duty 2: Repair fork and handle systems.

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Adjust handle.	▫ Importance and identification of handle. ▫ Function of handle. ▫ Straightness and tilting method. ▫ Adjustment procedure. ▫ Safety precaution.	1	2	3
2.	Repair / Replace/adjust bell.	▫ Importance and identification of bell. ▫ Function of bell. ▫ Bell adjustment technique. ▫ Safety precaution.	1	2	3
3.	Adjust brake.	▫ Importance and identification of brake its parts ▫ Type and function of brake ▫ Brake components and checking of wearness ▫ Trouble shooting ▫ Brake adjustment technique. ▫ Safety precaution.	1	3	4
4.	Replace brake clip.	▫ Importance and identification of brake clip ▫ Types and of screw used ▫ Procedure. ▫ Safety precaution.		2	2
5.	Replace brake shoe / rubber.	▫ Importance and identification of brake pad ▫ Size of brake pad/ rubber. ▫ Pad adjustment technique ▫ Safety precaution.	1	2	3
6.	Adjust frame.	▫ Importance and identification of frame. ▫ Function of frame. ▫ Adjustment technique. ▫ Safety precaution.	1	2	3
7.	Repair / Replace ball / ball race.	▫ Importance and identification of ball	1	2	3

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
		and ball race. ⍁ Ball size and number. ⍁ Function of ball and lubrication ⍁ Procedure. ⍁ Safety precaution.			
8.	Adjust fork.	⍁ Importance and identification of fork. ⍁ Function of fork. ⍁ Fork standard (size, height and spring) ⍁ Adjustment procedure ⍁ Safety precaution.	1	2	3
9.	Repair / Replace ball race related to fork.	⍁ Function of ball race ⍁ Procedure. ⍁ Safety precaution.	1	2	3
10.	Repair / Replace lock.	⍁ Importance and identification of lock. ⍁ Function and type of lock. ⍁ Procedure. ⍁ Safety precaution.	1	3	4
11.	Adjust / Repair / Replace seat / seat pillar.	⍁ Importance and identification of seat ⍁ Purpose of seat. ⍁ Types and size of seat ⍁ Adjustment procedure ⍁ Safety precaution	1	2	3
12.	Repair / replace ball related to fork.	⍁ Importance and identification of ball ⍁ Function of ball. ⍁ Size and number. ⍁ Lubricants used ⍁ Procedure. ⍁ Safety precaution.	1	2	3
13.	Fit front wheel.	⍁ Importance and identification of wheel components. ⍁ Fitting procedure. ⍁ Safety precaution.	1	3	4

Duty 3: Repair pulling systems.

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Repair / replace paddle gear crank.	⍁ Importance and identification of gear	1	3	4

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
		crank. ⍁ Construction of gear crank ⍁ Procedure. ⍁ Safety precaution.			
2.	Repair / Replace Ball Bearing set	⍁ Importance and identification of ball bearing set ⍁ Types and size of bearing ⍁ Lubricants used ⍁ Procedure. ⍁ Safety precaution.	1	2	3
3.	Repair *kutta* / ball / spring of free wheel	⍁ Importance and identification ball and spring of free wheel. ⍁ Components of free wheel set. ⍁ Function and types of wheel. ⍁ Procedure ⍁ Safety precaution.	1	2	3
4.	Replace free wheel set	⍁ Procedure. ⍁ Safety precaution.	1	2	3
5.	Adjust chain	⍁ Importance and identification of chain ⍁ Chain links and size. ⍁ Chain cutting (concept only) ⍁ Chain adjustment procedure. ⍁ Safety precaution.	1	2	3
6.	Replace chain	⍁ Procedure. ⍁ Safety precaution.	1	4	5
7.	Repair / replace peddle set / peddle	⍁ Importance and identification of pedal. ⍁ Components of pedal set ⍁ Procedure. ⍁ Safety precaution.	1	2	3
8.	Adjust / repair chain cover	⍁ Importance and identification of chain cover ⍁ Types of chain cover. ⍁ Procedure. ⍁ Safety precaution.		2	2
9.	Replace free wheel teeth	⍁ Importance and identification of wheel	1	2	3

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
		teeth. ⍓ Function of free wheel. ⍓ Replacement procedure. ⍓ Safety precaution.			
10.	Adjust / repair mudguard	⍓ Importance and identification of mudguard. ⍓ Function of mudguard. ⍓ Adjustment procedure. ⍓ Safety precaution.	1	2	3
11.	Adjust / repair carrier	⍓ Importance and identification of carrier. ⍓ Size and types of carrier. ⍓ Procedure. ⍓ Safety precaution.	1	3	4
12.	Repair / replace cycle stand	⍓ Importance and identification of stand. ⍓ Function, types (side or center stand). ⍓ Procedure. ⍓ Safety precaution.	1	2	3
13.	Repair / replace gear cycle gear	⍓ Importance and identification of gear. ⍓ Gear type cycle (concept only) and its components. ⍓ Function of gear. ⍓ Procedure. ⍓ Safety precaution.	1	3	4

Duty 4: Repair body systems (Tricycle, *Riksa)*

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Adjust / repair angle.	⍓ Importance and identification of angle. ⍓ Size and types of angle. ⍓ Procedure. ⍓ Safety precaution..	1	2	3
2.	Adjust / repair kamani.	⍓ Importance, identification and purpose of kamani. ⍓ Adjustment procedure ⍓ Safety precaution.	1	3	4

3.	Adjust / repair angles supporter	⍁ Importance and identification of angle supporter. ⍁ Function of supporter. ⍁ Materials used in supporter. ⍁ Procedure. ⍁ Safety precaution.	1	3	4
4.	Adjust / repair / replace long rod, (Dhura)	⍁ Importance and identification of dhura/axle ⍁ Function of dhura. ⍁ Run out check up ⍁ Procedure. ⍁ Safety precaution.	1	3	4
5.	Adjust / Replace bearing / bearing box	⍁ Importance and identification of bearing. ⍁ Size and number of bearing. ⍁ Parts of bearing box. ⍁ Procedure. ⍁ Safety precaution.	1	3	4
6.	Adjust / Replace nuts & bolts	⍁ Importance and identification of nuts and bolts ⍁ Size and types. ⍁ Procedure. ⍁ Safety precaution.	1	3	4
7.	Adjust / repair / replace riksa body seat	⍁ Importance and identification of seat materials. ⍁ Seat base and other parts ⍁ Procedure. ⍁ Safety precaution.	1	2	3
8.	Adjust / repair / replace body	⍁ Importance and identification of body and cover. ⍁ Materials used in body. ⍁ Procedure. ⍁ Safety precaution.	1	3	4

Duty 5: Perform denting/painting works.

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Dissemble cycle / *riska*	⍁ Importance and	1	2	3

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
	parts	identification of various parts of riska. ▪ Function of each parts			
2.	Wash cycle/*riksa*	▪ Washing procedure ▪ Safety rules		2	2
3.	Remove old painting	▪ Importance of new paint. ▪ Tools and materials used in removing old paint. ▪ Procedure. ▪ Safety precaution.	1	3	4
4.	Apply sand paper	▪ Importance and identification of sand paper. ▪ Types of sand and emery paper. (Coarse, medium and fine) ▪ Procedure. ▪ Safety precaution.	1	2	3
5.	Apply putty on joints / holes	▪ Importance and identification of putty ▪ Application procedure. ▪ Safety precaution.	1	2	3
6.	Apply primer (Iron oxide	▪ Importance and identification of primer. ▪ Types of primer. ▪ Application procedure. ▪ Safety precaution.	1	3	4
7.	Apply final paint	▪ Importance of final paint ▪ Types of paint used. (Enamel) ▪ Application procedure. ▪ Safety precaution.	1	3	4
8.	Perform decorating works	▪ Importance of decoration ▪ Materials used in decoration (flowers, Jhulla, Photos etc.)	1	3	4

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Duty 6: Communicate with others

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Communicate with senior cycle mechanics	▪ Meaning and importance of communication. ▪ Type of communication (oral, sign/gesture and written). ▪ Oral communication	1	2	3

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
		techniques. ⍁ Communication for cooperative/collaborative tasks. ⍁ Learning and information sharing. ⍁ Prior consultation on assigned work with the seniors. ⍁ Uses of appropriate communication language (with higher and lower position staffs.)			
2.	Communicate with client.	⍁ Importance of listening and viewing the client's opinions (offering opinions, supporting statement and questions and clarification of the proposed job).	1	2	3
3.	Communicate with employer.	⍁ Refer to task 2	1	2	3
4.	Communicate with colleagues.	⍁ Importance of interpretation and explanation of the proposed job with friends.	1	2	3
5.	Communicate with supervisor.	⍁ Refer to task 1	1	2	3
6.	Communicate with supplier.	⍁ Refer to task 2	1	2	3
7.	Communicate with visitor.	⍁ Refer to task 2	1	2	3
8.	Communicate with junior.	⍁ Refer to task 4	1	2	3
9.	Communicate with Cycle and Riksa parts shops.	⍁ Demand and supply order. ⍁ Bill / invoice. ⍁ Material supply and delivery.	1	2	3
10.	Receive telephone call.	⍁ Meaning, importance and purpose of telephone ⍁ Telephone receiving technique ⍁ Etiquette of receiving telephone call.	1	2	3

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
		▫ Message writing technique			

Duty 7: Grow professionalism.

S. No	Competencies	Related Technical Knowledge	Time (in hrs.)		
			Th.	Prac.	Total
1.	Consult senior cycle mechanics.	▫ Importance of participating in career exploration activities with the senior cycle mechanics.	1	2	3
2.	Visit other's working place/ sight.	▫ Importance of learning from different workplaces and site visits.	1	3	4
3.	Read related materials (Documents, manuals, brochures)	▫ Importance of learning from trade relevant documents, manuals and other job related sheets.	1	3	4
4.	Attend training/ seminar/workshops	▫ Need of growing professionalism. ▫ Importance of career development opportunities inside and outside the organization.	1	4	5
5.	Watch Audio-Visual.	▫ Familiarization of TVs channel/A/V aids. ▫ Importance of leaning from A/V.	1	2	3
6.	Browse World Wide Web.	▫ Familiarization with computer. ▫ WWW browsing techniques.	1	2	3
7.	Seek trainings places / programs	▫ Importance of trainings in career development. ▫ Possible training providers/institutes for refresher trainings.	1	2	3