Compare these cognates from two Lencan languages (both recently extinct: Chilanga was spoken in El Salvador, Honduran Lenca in Honduras). Don't work on the vowels, which are undergoing very complicated changes; just consider the consonants.

(1) figure out the sound correspondences: this will involve statements like:
Where Honduran Lenca has a P, Chilanga has a Q.

(2) Reconstruct the sounds of Proto-Lencan

(3) Find and list the sound changes which took place in each language

(4) If the sound changes need to be ordered, determine the order.

t', *k'*, and *ts'* are ejectives.

Honduran Lenca	*Chilanga*		*Proto-Lencan*
pe	pe	'two'	pe
lepa	lepa	'jaguar'	lepa
puki	puki	'big'	puki
ta	ta	'cornfield'	ta
tem	tem	'louse'	tem
ke	ke	'stone'	ke
kuma	kumam	'fingernail, claw'	kumam
katu	katu	'spider'	katu
waktik	watih	'sandals'	waktik
kakma	k'ama	'gourd'	k'akma
siksik	sisih	'shrimp'	siksik
nek	neh	'tooth'	nek
insek	ints'eh	'beak'	ints'ek
taw	t'aw	'house'	t'aw
tutu	t'ut'u	'flea'	t'ut'u
kin	k'in	'road'	k'in
kunan	k'ula	'who'	k'unan
kelkin	k'elkin	'tortilla griddle'	k'elkin
sewe	ts'ewe	'monkey'	ts'ewe
saj	ts'aj	'five'	ts'aj
musu	muts'u	'liver'	muts'u
sak	ts'ih	'to wash'	ts'ak
lawa	lawa	'three'	lawa
liwa	liwa	'to buy'	liwa
tal	tal	'to drink'	tal
wala	wala	'raccoon'	wala
was	wal	'water'	was
asa	alah	'head'	asah
wasan	wila	'urine'	wasan
wara	wara	'river'	wara

siri	sirih	‘star’	sirih
sili	sili	‘iron tree (tree sp.)’	sili
suri-sur	ʃurih	‘squirrel’	ʃurih
saj	ʃej	‘to want’	ʃaj
so	ʃo	‘rain’	ʃo
suna	ʃila	‘flower’	ʃuna
soko	ʃoko	‘white’	ʃoko
sak	ʃah	‘firewood’	ʃak
jet	jete	‘laugh’	jete
juku	juku	‘coyol palm (tree sp.)’	juku
wewe	wewe	‘baby’	wewe
sa	ʃam	‘good’	ʃam

Honduran Lenca rules

[+continuant, -sonorant, +glottal]-->Ø	(h-->Ø)
[+continuant, -sonorant]-->[+alveolar]	(ts’, ʃ-->s)
ejectives become regular voiceless stops	
[+bilabial, +nasal]-->Ø / [+back, +low]	(m-->Ø / a __)

The first two rules should be ordered as shown, to prevent *h* from changing to *s*.

Chilanga rules

[+continuant, -sonorant, +alveolar]-->[+liquid] / V __	(s-->l / V __)
[+velar--> Ø / __ C	(k-->Ø / __ C)
[+velar]-->[+continuant, +glottal] / __ #	(k-->h / __ #)
[+alveolar, +nasal]-->[+liquid] / V__ V	(n-->l / V __ V)
[+alveolar, +nasal]-->Ø / [+back, +low] __	(n-->Ø / a__)

The first two rules should be ordered as shown, so that Proto-Lencan *siksik* becomes *sisih*, rather than *silih*. It’s easy to see the second and third rules as related; maybe *k* became *h* at the end of a syllable, and then *h* dropped before consonants.

One important thing to notice about this problem: when you’re doing a problem like this, you’re not trying to derive one of the languages from the other; rather, you’re positing proto-forms from which both languages are derived. So, for example, Proto-Lencan forms somtimes look like Honduran Lenca forms (e.g., the word for ‘sandals’ is *waktik* in both), and sometimes like Chilanga forms (‘rain’ is *ʃo* in both), and sometimes neither (Proto-Lencan *k’akma* ‘gourd’ became *kakma* in Honduran Lenca and *k’ama* in Chilanga). Evolutionary biologists sometimes have to explain that humans did not evolve from apes; humans and apes evolved from a common ancestor. Similarly, Honduran Lenca did not evolve from Chilanga, or vice versa; they both evolved from a common ancestor (Proto-Lencan).

This problem was taken from Lyle Campbell's textbook *Historical Linguistics* (from MIT Press), which I'd strongly recommend if you're interested in this kind of problem; it's a very nice, clearly written work.