NXT AND EV3:
WORKING TOGETHER

By Droids Robotics, 2015

"When developing LEGO® MINDSTORMS® Education EV3 there has been a strong focus on ensuring backwards compatibility to NXT, making it possible for user to utilise many NXT elements together with EV3" - LEGO

Using the NXT brick with EV3 software

1. Space is a challenge - the NXT has very little storage and a few programs with the new software fill it up *very* quickly.
2. Sensor support is limited - you need to deal with issues such as light level calibration on your own. Some sensors use odd interfaces (e.g. light uses the sound block).
3. Some blocks don't work as advertised. Move steering/tank blocks don't synchronize motors well, therefore, making turns difficult. Built-in graphics don't fit on NXT screen. Advanced Math Blocks cannot be used on the NXT.

Using NXT peripherals (sensors and motors) with the EV3 brick:

1) Auto recognition is limited - sometimes, the EV3 brick does not automatically recognize when an NXT part is connected
2) The NXT color sensor is not as accurate as the EV3 color sensor

	Description	EV3 Brick	NXT Brick
Hardware (EV3)	EV3 Large motor	Yes	Yes
	EV3 Medium motor	Yes	Yes
	EV3 Touch sensor	Yes	No
	EV3 Light sensor	Yes	No
	EV3 Gyro sensor	Yes	No
	EV3 Ultrasonic sensor	Yes	No
	EV3 Colour sensor	Yes	No
	EV3 IR sensor	Yes	No
Hardware (NXT)	NXT Large motor	Yes	Yes
	NXT Touch sensor	Yes	Yes
	NXT Light sensor	Yes (as Colour)	Yes (as Sound!)*
	NXT Sound sensor	Yes	Yes
	NXT Ultrasonic sensor	Yes	Yes
	NXT Colour sensor	Yes	Yes
	NXT Temperature sensor	Yes	Yes
Program	Display	Yes (but Reset mode is odd)	Yes (but some images don't display correctly)
	Array	Yes	No
	Math	Yes	Yes (but not Exponent or Advanced)
	Datalogging block	Yes	No
	Invert motor	Yes	No
Experiment	Experiment (Datalogging)	Yes	Yes
	Oscilloscope mode	Yes	No
	Graph programming	Yes	No
Other	Auto ID	Yes	No
	Port View	Yes	Yes (manual setup)
	Bluetooth (PC – Brick)	Yes	Yes?
	Bluetooth (Brick – Brick)	Yes	No

Source: legoengineering.com